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ONE of the most complete and salutary reforms ever, perhaps, made in any country, is the temperance reform of the last fifteen years in the United States. Everybody, familiar with our manners and customs fifteen or twenty years ago, very well knows that though our people were never positively intemperate, yet ardent spirits were, at that time, in almost as constant daily use, both in public and private life, as tea and coffee are now; while, at the present moment, they are seldom or never offered as a means of civility or refreshment—at least in the older states. The result of this higher civilization or temperance, as one may please to call it, is that a large amount of vice and crime have disappeared from amidst the laboring classes, while the physical as well as moral condition of those who labor too little to be able to bear intoxicating drinks, is very much improved.

We have taken this consolatary glance at this great and salutary reform of the habits of a whole country, because we need something to fortify our faith in the possibility of new reforms; for our countrymen have, within the last ten years, discovered a new poison, which is used wholesale, both in public and private, all over the country, till the national health and constitution are absolutely impaired by it.

"A national poison? Do you mean slavery, socialism, abolition, mormonism?" Nothing of the sort. "Then, perhaps, tobacco, patent medicines, or coffee?" Worse than these. It is a foe more insidious than these; for, at least, one very well knows what one is about when he takes copious draughts of such things. Whatever his own convictions may be, he knows that some of his fellow creatures consider them deleterious.

But the national poison is not thought dangerous. Far from it. On the contrary, it is made almost synonymous with domestic comfort. Old and young, rich and poor, drink it in with avidity, and without shame. The most tender and delicate women and children are fondest of it, and become so accustomed to it, that they gradually abandon the delights of bright sunshine and the pure air of heaven, to take it in large draughts. What matter if their cheeks become as pale as the ghosts of Ossian; if their spirits forsake them, and they become listless and languid! Are they not well housed and *comfortable*? Are not their lives virtuous, and their affairs prosperous? Alas, yes! But they are not the less guilty of poisoning themselves daily, though perhaps unconscious of it all the time.

The national poison that we allude to, is nothing less than the vitiated air of *close*

stoves, and the unventilated apartments which accompany them!

"STOVES"—exclaim a thousand readers in the same breath—"stoves poisonous? Nonsense! They are perfectly healthy, as well as the most economical, convenient, labor-saving, useful and indispensable things in the world. Besides, are they not real Yankee inventions? In what country but this is there such an endless variety of stoves—cooking stoves, hall stoves, parlor stoves, air-tight stoves, cylinders, salamanders, etc.? Why, it is absolutely the national invention—this stove—the most useful result of universal Yankee ingenuity."

We grant it all, good friends and readers; but must also have our opinion—our calmly considered and carefully matured opinion—which is nothing more nor less than this, that stoves—as now used—are the national curse; the secret poisoners of that blessed air, bestowed by kind Providence as an elixir of life,—giving us new vigor and fresh energy at every inspiration; and we, ungrateful beings, as if the pure breath of heaven were not fit for us, we reject it, and breathe instead—what?—the air which passes over a surface of hot iron, and becomes loaded with all the vapor of arsenic and sulphur, which that metal, highly heated, constantly gives off!

If in the heart of large cities—where there is a large population crowded together, with scanty means of subsistence—one saw a few persons driven by necessity into warming their small apartments by little close stoves of iron, liable to be heated red-hot, and thereby to absolutely destroy the purity of the air, one would not be so much astonished at the result, because it is so difficult to preserve the poorest class from suffering, in some way or other, in great cities. But it is by no means only in the houses of those who have slender means of subsistence that this is the case. It is safe to say that nine-tenths of all the houses in the northern states, whether belonging to rich or poor, are entirely unventilated, and heated at the present moment by close stoves!

It is absolutely a matter of *preference* on the part of thousands, with whom the trifling difference between one mode of heating and another is of no account. Even in the midst of the country, where there is still wood in abundance, the farmer will sell that wood and buy coal, so that he may have a little *demon*—alias a black, cheerless, close stove—in the place of that genuine hospitable, wholesome *friend* and comforter, an open wood fire-place.

And in order not to leave one unconverted soul in the wilderness, the stove inventors have lately brought out "a new article," for forest countries, where coal is not to be had either for love or barter—an "air-tight stove for burning wood." The seductive, convenient, monstrous thing! "It consumes one-fifth of the fuel which was needed by the open chimney—is so neat and clean, makes no dust, and gives no trouble." All quite true, dear considerate housewife—all quite true; but that very stove causes your husband to pay twice its savings to the family doctor before two winters are past, and gives you thrice as much trouble in nursing the sick in your family as you formerly spent in taking care of the fire in your chimney corner,—besides depriving you of the most delightful of all household occupations.

Our countrymen generally have a vast deal of national pride, and national sensitiveness, and we honor them for it. It is the warp and woof, out of which the stuff of national improvement is woven. When a nation becomes quite indifferent as to what it has done, or can do, then there is nothing left but for its prophets to utter lamentations over it.

Now there is a curious but indisputable fact, (somebody *must* say it,) touching our

present condition and appearance, as a nation of men, women and children, in which we Americans compare most unfavorably with the people of Europe, and especially with those of northern Europe—England and France, for example. It is neither in religion or morality, law or liberty. In these great essentials every American feels that his country is the birthplace of a larger number of robust and healthy souls than any other. But in the bodily condition, the *signs of physical health*, and all that constitutes the outward aspect of the men and women of the United States, our countrymen, and especially countrywomen, compare most unfavorably with all but the absolutely starving classes on the other side of the Atlantic. So completely is this the fact, that though we are unconscious of it at home, the first thing (especially of late years) which strikes an American, returning from abroad, is the pale and sickly countenances of his friends, acquaintances, and almost every one he meets in the streets of large towns,—every other man looking as if he had lately recovered from a fit of illness. The men look so pale, and the women so delicate, that his eye, accustomed to the higher hues of health, and the more vigorous physical condition of transatlantic men and women, scarcely credits the assertion of old acquaintances, when they assure him that they were "never better in their lives."

With this sort of impression weighing disagreeably on our mind, on returning from Europe lately, we fancied it worth our while to plunge 200 or 300 miles into the interior of the state of New-York. It would be pleasant, we thought, to see not only the rich forest scenery opened by the new railroad to Lake Erie, but also, (for we felt confident they were there,) some good, hearty, fresh looking lads and lasses among the farmers' sons and daughters.

We were for the most part disappointed. Certainly the men, especially the young men, who live mostly in the open air, are healthy and robust. But the daughters of the farmers—they are as delicate and pale as lilies of the valley, or fine ladies of the Fifth Avenue. If one catches a glimpse of a rose in their cheeks, it is the pale rose of the hot-house, and not the fresh glow of the garden damask. Alas, we soon discovered the reason. They, too, live for seven months of the year in unventilated rooms, heated by close stoves! The fire-places are closed up, and ruddy complexions have vanished with them. Occasionally, indeed, one meets with an exception; some bright eyed, young, rustic Hebe, whose rosy cheeks and round, elastic figure would make you believe that the world has not all grown "delicate;" and if you inquire, you will learn probably that she is one of those whose natural spirits force them out continually in the open air, so that she has as yet in that way escaped any considerable doses of the national poison.

Now that we are fairly afloat on this dangerous sea, we must unburthen our heart sufficiently to say that neither in England nor France does one meet with so much beauty—certainly not, so far as charming eyes and expressive faces go towards constituting beauty—as in America. But alas, on the other hand, as compared with the elastic figures and healthful frames abroad, American beauty is as evanescent as a dissolving view, contrasted with a real and living landscape. What is with us a sweet dream, from sixteen to twenty-five, is there a permanent reality till forty-five or fifty.

We should think it might be a matter of *climate*, were it not that we saw, as the most common thing, even finer complexions in France—yes, in the heart of Paris, and especially among the peasantry, who are almost wholly in the open air—than in England.

And what, then, is the mystery of fine physical health, which is so much better understood in the old world than the new?

The first transatlantic secret of health, is a much longer time passed daily in the open air by all classes of people; the second, the better modes of heating and ventilating the rooms in which they live.

Regular daily exercise in the open air, both as a duty and a pleasure, is something looked upon in a very different light on the two different sides of the Atlantic. On this side of the water, if a person—say a professional man, or a merchant—is seen regularly devoting a certain portion of the day to exercise, and the preservation of his bodily powers, he is looked upon as a valetudinarian,—an invalid, who is *obliged* to take care of himself, poor soul! and his friends daily meet him with sympathising looks, hoping he "feels better," etc. As for ladies, unless there is some *object* in taking a walk, they look upon it as the most stupid and unmeaning thing in the world.

On the other side of the water, a person who should neglect the pleasure of breathing the free air for a couple of hours daily, or should shun the duty of exercise, is suspected of slight lunacy; and ladies who should prefer continually to devote their leisure to the solace of luxurious cushions, rather than an exhilerating ride or walk, are thought a little *tête montée*. What, in short, is looked upon as a virtue there, is only regarded as a matter of fancy here. Hence, an American generally shivers, in an air that is only grateful and bracing to an Englishman, and looks blue, in Paris, in weather when the Parisians sit with the casement windows of their saloons wide open. Yet it is, undoubtedly, all a matter of habit; and we Yankees, (we mean those of us not forced to "rough it,") with the toughest natural constitutions in the world, nurse ourselves, as a people, into the least robust and most susceptible *physiques* in existence.

So much for the habit of exercise in the open air. Now let us look at our mode of warming and ventilating our dwellings; for it is here that the national poison is engendered, and here that the ghostly expression is begotten.

However healthy a person may be, he can neither *look* healthy, nor remain in sound health long, if he is in the habit of breathing impure air. As sound health depends upon *pure blood*, and there can be no pure blood in one's veins if it is not re-purified continually by the action of fresh air upon it, through the agency of the lungs (the whole purpose of breathing, being to purify and vitalize the blood,) it follows, that if a nation of people *will*, from choice, live in badly ventilated rooms, full of impure air, they must become pale and sallow in complexions. It may not largely affect the health of the *men*, who are more or less called into the open air by their avocations, but the health of women, (*ergo* the constitutions of children,) and all those who are confined to rooms or offices heated in this way, must gradually give way under the influence of the poison. Hence, the delicacy of thousands and tens of thousands of the sex in America.*

"And how can you satisfy me," asks some blind lover of stoves, "that the air of a room heated by a close stove is deleterious.?" Very easily indeed, if you will listen to a few words of reason.

It is well established that a healthy man must have about a pint of air at a breath; that he breathes above a thousand times in an hour; and that, as a matter beyond dispute, he requires about *fifty-seven hogsheads* of air in twenty-four hours.

Besides this, it is equally well settled, that as common air consists of a mixture of two gases, one healthy (oxygen,) and the other unhealthy (nitrogen,) the air we have once

* We have said that the present generation of stove-reared farmer's daughters are pale and delicate in appearance. We may add, that the most healthy and blooming looking American women are those of certain families where exercise, and fresh air, and ventilation, are matters of conscience and duty here as in Europe.

breathed, having, by passing through the lungs, been deprived of most of the healthful gas, is little less than unmixed poison (nitrogen.)

Now, a room, warmed by an open fire-place or grate, is necessarily more or less ventilated, by the very process of combustion going on; because, as a good deal of the air of the room goes up the chimney, besides the smoke and vapor of the fire, a corresponding amount of fresh air comes in at the windows and door crevices to supply its place. The room, in other words, is tolerably well supplied with fresh air for breathing.

But let us take the case of a room heated by a close stove. The chimney is stopped up, to begin with. The room is shut up. The windows are made pretty tight to keep out the cold; and as there is very little air carried out of the room by the stove-pipe, (the stove is perhaps on the air-tight principle,—that is, it requires the minimum amount of air,) there is little fresh air coming in through the crevices to supply any vacuum. Suppose the room holds 300 hogsheads of air. If a single person requires 57 hogsheads of fresh air per day, it would last four persons but about twenty-four hours, and the stove would require half as much more. But, as a man renders noxious as much again air as he expires from his lungs, it actually happens that in four or five hours all the air in this room has been either breathed over, or is so mixed with the impure air which has been breathed over, that it is all thoroughly poisoned, and unfit for *healthful* respiration. A person with his senses unblunted, has only to go into an ordinary unventilated room, heated by a stove, to perceive at once, by the effect on the lungs, how dead, stifled, and destitute of all elasticity the air is.

And this is the air which four-fifths of our countrymen and countrywomen breathe in their homes,—not from necessity, but from choice!

This is the air which those who travel by hundreds of thousands in our railroad cars, closed up in winter, and heated with close stoves, breathe for hours—or often entire days.*

This is the air which fills the cabins of closely packed steamboats, always heated by large stoves, and only half ventilated; the air breathed by countless numbers—both waking or sleeping.

This is the air—no, this is even salubrious compared with the air—that is breathed by hundreds and thousands in almost all our crowded lecture-rooms, concert-rooms, public halls, and private assemblies, all over the country. They are nearly all heated by stoves or furnaces, with very imperfect ventilation, or no ventilation at all.

Is it too much to call it the national poison, this continual atmosphere of close stoves, which, whether travelling or at home, we Americans are content to breathe, as if it were the air of Paradise?

We very well know that we have a great many readers who abominate stoves, and whose houses are warmed and ventilated in an excellent manner. But they constitute no appreciable fraction of the vast portion of our countrymen who love stoves—fill their houses with them—are ignorant of their evils, and think ventilation and fresh air physiological chimeras, which may be left to the speculations of doctors and learned men.

And so every other face that one meets in America, has a ghostly paleness about it, that would make a European stare.†

What is to be done? "Americans will have

* Why the ingenuity of clever Yankees has not been directed to warming railroad cars (by means of steam conveyed through metal tubes, running under the floor, and connected with flexible coupling pipes,) we cannot well understand. It would be at once cheaper than the present mode, (since waste steam could be used,) and far more wholesome. Railroad cars have, it is true, ventilators at the top for the escape of foul air, but no apertures in the floor for the inlet of fresh air! It is like emptying a barrel without a vent.

† We ought not, perhaps, to include the Germans and Russians. They also love stoves, and the poison of bad air indoors, and therefore have not the look of health of other European nations, though they live far more in the open air than we do.

stoves." They suit the country, especially the new country; they are cheap, labor-saving, clean. If the more enlightened and better informed throw them aside, the great bulk of the people will not. Stoves are, we are told, in short, essentially democratic and national.

We answer, let us *ventilate our rooms*, and learn to live more in the open air. If our countrymen will take poison in, with every breath which they inhale in their houses and all their public gatherings, let them *dilute it* largely, and they may escape from a part at least of the evils of taking it in such strong doses.

We have not space here to show in detail the best modes of ventilating now in use. But they may be found described in several works, especially devoted to the subject, published lately. In our volume on COUNTRY HOUSES, we have briefly shown, not only the principles of warming rooms, but the most simple and complete modes of ventilation,—from Arnott's chimney valve, which may for a small cost be easily placed in the chimney flue of any room, to Emerson's more complete apparatus, by which the largest apartments, or every room in the largest house, may be warmed and ventilated at the same time, in the most complete and satisfactory manner.

We assure our readers that we are the more in earnest upon this subject, because they are so apathetic. As they would shake a man about falling into that state of delightful numbness which precedes freezing to death, all the more vigorously in proportion to his own indifference and unconsciousness to his sad state, so we are the more emphatic in what we have said, because we see the national poison begins to work, and the nation is insensible.

Pale countrymen and countrywomen, rouse yourselves! Consider that GOD has given us an atmosphere of pure, salubrious, health-giving air, 45 miles high, and—*ventilate your houses.*

ON THE PROPAGATION OF CONE-BEARING EVERGREEN TREES.

BY M. COURTIN, OF BORDEAUX.

DURING the last few years, Coniferæ have become somewhat popular among gardeners and amateurs, and it will, doubtless, be interesting to give a short description of the mode of propagating some of the more ornamental kinds, especially those which are often grown in pots or tubs, as ornamental objects for the conservatory or the terrace garden.

The modes of propagation here described, are those practiced by an experienced gardener who has been for a long time exclusively occupied in the culture of this beautiful tribe of plants. It is well known among practical men, especially by propagators, that Coniferæ are not readily reared from cuttings, and that other means, such as the different processes of grafting, are much more successfully employed. It is not the less true that different species of Coniferæ require to be grafted by different methods. Many species cannot be propagated by cuttings at all, owing, no doubt, to their resinous nature. Those who cultivate Coniferæ, and desire to propagate them extensively, should keep at hand a number of the stocks best suited to the different species. The following sorts are recommended for this purpose:—Araucaria imbricata; the different species of Pinus; Thuja orientalis, and occidentalis; Juniperus virginiana; Podocarpus elongatus; Taxus; Cupressus; Taxodium distichum; and Dacrydium spicatum, or Podocarpus spicatus.

What is called side-grafting, is the mode most successfully adopted with many kinds that are required to be quickly grown into strong and vigorous plants. The best time for performing the operation, is in the months of March and August. The stocks used ought not to be stronger than a common quill. Worsted or woollen thread is found to be the

best tying material that can be used. As soon as the plants are grafted, they must be placed near the glass of a propagating house, in an inclined position, so as to impede the circulation of the sap to the top of the stock, and to facilitate the adhesion of the graft. The management must be the same as that given to grafted plants in general; but care should be taken not to allow them to become too moist. They must also be frequently cleaned, and the stock must not be cut down before the graft has grown somewhat strong and vigorous.

The best time for taking cuttings is towards the latter part of the summer, and it is necessary to select them from the young shoots that have grown the same year: they should be cut close to the old wood. The cuttings should be planted in pots of silver sand, and kept in a warm green-house or propagating house, and covered with a bell glass or a hand light. Those persons who have not the convenience of a house in which to place cuttings, may avail themselves of the mode of propagating called layering. For this purpose, when the young shoots have become sufficiently strong, it will be necessary to erect an artificial stage around the plant which it is desired to propagate. On this stage, pots of suitable soil must be fastened, by being tied to the boards, and in the position best adapted for the operation. The branches must then be gently bent over the pot, and properly secured in their place; the young shoots inserted in the soil of the pot, and secured with a small peg. This is the most successful mode of propagating such kinds as Pinus longifolius, P. palustris, and P. Hartwegii, which have a spongy bark.

Grafting upon *roots* has been found very successful with the different species of Thuja and Juniperus. This mode is performed as follows:—In February or March, the small roots of Juniperus virginiana, and Thuja orientalis or occidentalis, are taken off: they must not be stronger than the scion or shoot, which should be selected from last year's wood, near the summit of the plant. When the grafts are made, the roots must be potted in small pots and placed on a shelf in the green-house, being kept close, and shaded until established.

As regards the most suitable stocks for Coniferæ, it may be observed that they are most successfully raised from seed. It is not advisable to take young plants from a collection for this purpose; because they do not accommodate themselves to pot culture so well as plants obtained from seeds. Good healthy seeds of the species named at the beginning of this article, should be procured for the purpose of raising plants to be kept as stocks. Such plants will be found most suitable for those engaged in the propagation of Coniferæ. The seeds should be sown in February, in wooden boxes of convenient size, and three or four inches in depth. The soil most suitable for sowing them in is sandy peat, mixed with a fourth part of loam. The boxes should be well drained, and, after the seeds are sown, placed in a temperate green-house. As soon as the seedlings appear, the boxes must be removed near the glass, in order to give the plants plenty of light. Before the first leaves appear, the young plants should be taken out and potted in two-inch pots, using a sandy peat soil, but no loam. This treatment is preferable to allowing the young plants to grow large in the box, and then shifting them into pots; as, when they are taken out of the box very young, with only one or two roots, they are less liable to be injured, and they soon adapt themselves to their new situation. When the seedlings have been potted, they should be removed to a cool frame, and placed on a bed of ashes or gravel, but quite near the glass. They will require to be shaded during bright sunny weather, and care must be taken never to allow them to become either too dry or too wet. The frame may be kept rather close till the end of May, or the beginning of June, according to the state of the weather, when the lights may be taken off. As soon as very rainy and frosty weather sets in, the lights must be put on again, to remain on all the winter. Very little shelter will be necessary except during severe frosts. Air must be admitted to the plants on all favorable occasions. In spring, they will require to be shifted into four-inch pots, and if properly attended to, they will be ready to graft upon by the autumn.

Seeds of Taxus, Thuja, and Juniperus virginiana, may be sown in the open ground, and pricked into pots three or four months before they are wanted to work on. They may be removed to a shelf in a temperate moist stove, to remain for some time, the better to establish them in the pots.

NOTES ON DECORATIVE GARDENING—FOUNTAINS.

BY H. NOEL HUMPHREYS, ESQ.*

THE most highly wrought effects produced in garden architecture have been those effected by means of fountains; of this, the well-known gardenesque water-works of Versailles and St. Cloud are sufficient evidence.

Sir Uvedale Price says:—"With respect to fountains and statues, as they are among the most refined of all garden ornaments, so are they the most liable to be introduced with impropriety. The effect, however, (especially that of water mixed with sculpture,) is of the most brilliant kind." Some have asserted, that fountains are unnatural; but natural *jets d'eau*, though rare, do exist, and are among the most surprising exhibitions of nature, which, in Iceland, and other volcanic regions, have struck the traveller with wonder.

But though we find natural fountains in the wildest scenes of nature, it is not, however, necessary, in making artistic use of a natural law that produces a *jet d'eau*, to surround the artificial jet with the circumstances that surround it in nature, any more than it is necessary that the architect, in building with stone, should imitate in his work the rude form of the quarry from which it was taken. On the contrary, as fountains produce the best effect near buildings, and in combination with statuary, architects and sculptors, like Bernini, says Sir U. Price, would not think of inquiring what were the precise forms of natural water-spouts; but knowing that water forced into the air must necessarily assume a great variety of beautiful effects, which, added to its native clearness and brilliancy, would admirably accord with the forms and colours of statues and architecture, would use it accordingly.

* From Gard. Magazine of Botany.

Nature and art are more closely allied than appears at a first glance; for all art is founded upon the development of some natural law, which Shakespeare perceived when he makes Polixenes, in the "Winter's Tale," say,

"This is an art
Which does mend nature—change it rather; but
The art is nature's self."

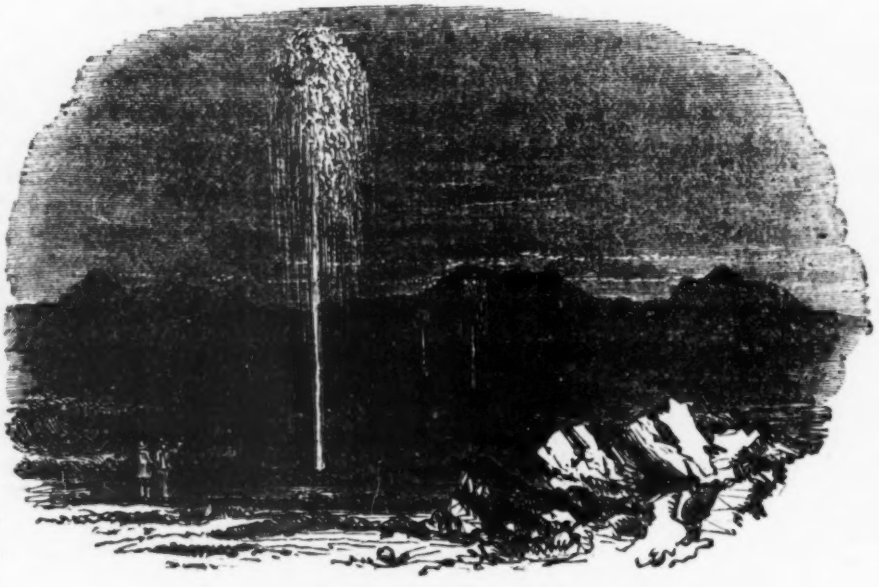

Fig. 55.—Natural Jet D'Eau.

Under ordinary circumstances the scenic features that surround garden fountains are such that the impression one receives on seeing water forced into the air is, that art has been employed to produce the effect. Therefore, while still water finds its more appropriate locality in the lower portion of the grounds, fountains may be more properly placed in the higher levels of a garden, as their evidently artificial character seems to find its appropriate situation in a position where water would be highly desirable and ornamental, but where it could only be brought by scientific and artistic means. Here, then, the display of art, even to a degree of ostentation, becomes legitimate; and fountains, of elaborate character and complicated architectural design, find their most imposing station at the extremities, or centres, of elevated terraces, and places of similar character, where the gardenesque, and semi-architectural character of the surround-

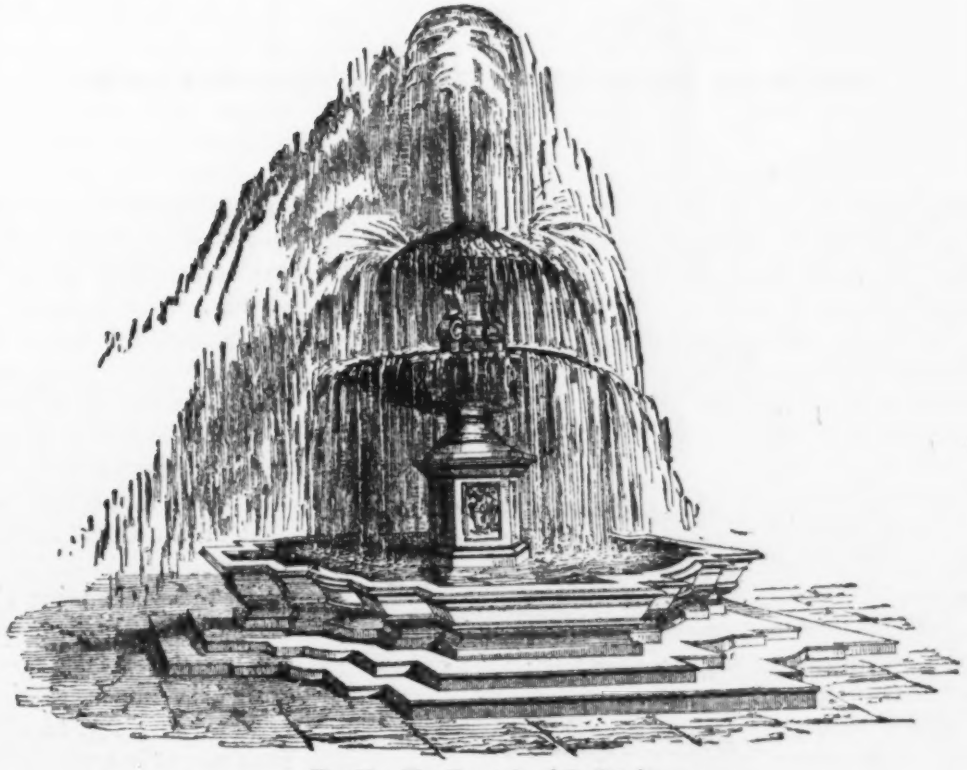

Fig. 56.—*The Fountain of St. Peter's.*

ing scene, is all in artistic harmony with them.

Very few good fountains have been as yet constructed in England; the two in Trafalgar Square—which our national *Charivari* (*Punch*) very aptly and cleverly compared to "*two saucers surmounted by a bottle of ginger beer*"—being signal failures; and the one recently erected at Brighton, though on a more ambitious scale, almost equally unsuccessful. Into the region of "*art*," in the treatment of fountains, we have not yet penetrated; but in simpler forms of fountains—that of a simple jet issuing at once from the level of the main water—greater success has been attained, as mere "dimension" is the great quality in this unadorned natural effect. The scale is, in fact, everything; and so far, the jet at Chatsworth is highly successful—indeed, magnificent; but all the other attempts at fountain-work, all the minor squirtings, including the too celebrated "water-tree," are beneath notice; and still more worthless, in point of art, are all the fantastic failures called fountains at Alton towers.

Modern Italy is the classic land of fountains. Long before Le Notre and his cotemporaries and *collaborateurs* constructed the celebrated water-works of Versailles, the magnificent fountains of the Villa d'Este, and those of the Villa Aldobrandini, were well known and justly celebrated works, especially the building called the "Saloon of the Winds," where water is made to produce rushing sounds characteristic of the four winds, the personifying deities of which form sculptural groups, among which the play of waters has a very grand effect. Still more elaborate is the work of Giacomo della Porta, the celebrated *Mount Parnassus*, with the deities playing on different musical instruments, the sounds of which are imitated by the water in a manner, which, if not entirely successful, is yet sufficiently approaching the desired effect to be very astonishing. These wonders of the villas of the Sabine hills, in the region of Tivoli and Frascati, are, however, among the over-wrought effects of hydraulic science and art. More simple, and more artistically grand, are some of the fountains of Rome; that, for instance, which introduces the *acqua Paola* to Rome—a supply named after Pope Paul V., the founder of the Borghesi family, who repaired one of the ancient aqueducts, and so united a magnificent stream of water once more to Rome, after centuries of severation, in consequence of ruinous portions of the aqueduct allowing the stream to waste itself uselessly

Fig. 57.—*Fountain of the Palazzo Fornesi.*

on the Campagna. To usher this restored supply of the precious element into the "Eternal City" with due "pomp and circumstance," a magnificent architectural composition was erected on the slope of the Janiculan hill, between the columns of which three grandly designed apertures appear, from which three torrents—for no other term will sufficiently express the bulk of water—fall with a deafening sound, amid a cloud of spray, into three gigantic *tazze*, from which conduits carry the water to supply many of the greater, and an endless number of the lesser fountains of Rome.

The fountains on the *Piazza San' Pietro* are, perhaps, the finest detached specimens of purely decorative fountains in existence. They are the work of Carlo Maderno; and such is the magnificent character of this simple design—the quantity of water thrown up, and falling in clouds of spray, in which, at a certain hour, one or more rainbows are distinctly seen—that, even immediately in front of St. Peter's, one of the largest and most imposing buildings in the world, their effect, so far from being insignificant, is most grand and imposing. These, with the great fountain of Trevi, have afforded Madame de Stael subject for some of her most eloquent, descriptive passages in her admirable novel, "*Corinne, ou l'Italie.*"

Fig. 56 is a small, and, of course, inadequate, representation of one of the fountains of St. Peter's; fig. 57, that of the Palazzo Fornesi; and fig. 58, another grand and simple example of the fountains of Rome—that of the Court of the Belvidere.

In these fountains the abundance of water always forms the grandest feature—a mere squirt is but a carricature in comparison; for, to cite a passage recently quoted by Emerson in his *Representative Men*,

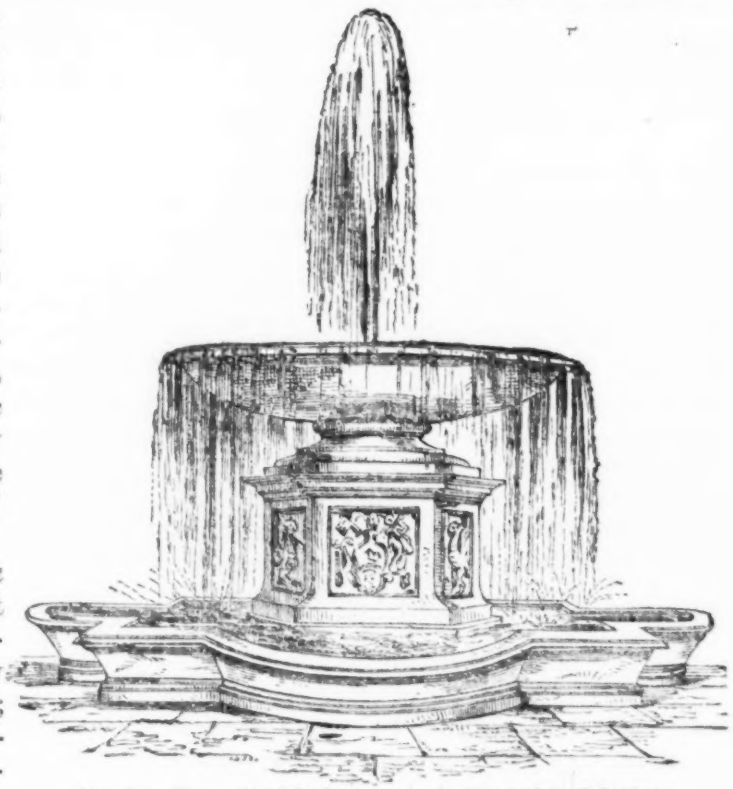

Fig. 58.—*Fountain of the Vatican, in the Court of the Belvidere.*

"A single drop of sea-water possesses all the chemical properties of the great ocean of which it is a part, but it is incapable of representing the phenomenon of a storm."

Thus we see that *magnitude* must inevitably form a great element in the sublime, and that dimension, as well as design, are points to be considered in the construction of objects intended to produce a certain effect of grandeur.

In places, however, where an enormous supply of water would be impossible, very pretty effects, approaching even the grand, may be attained by judicious management. The water, by the assistance of special contrivances, being made to appear more plentiful than it is, and by the aid of moveable heads fitting on the pipe of supply, a great variety of effects may be produced; but these should only be used on certain occasions, the simplest possible form being the one in which the action of the fountain should be commonly seen.

My examples from the fountains of Rome have not been selected to exhibit the vast scale and magnificence of the greatest of those works, many of which occupy great space; being, in fact, complicated sculptural tableux, in which a great number of statues are required to complete the composition. I have rather selected such examples as might be applicable to practical purposes.

THE N. Y. AGRICULTURAL SCHOOL—Reasons why the Bill was not Passed.

BY E. W. L., SYRACUSE, N. Y.

A. J. Downing, Esq.—*Dear Sir:* The notice of the bill to establish an agricultural college, contained in the June number of the Horticulturist, does manifest injustice to the chairman of the select committee, which had that subject in special charge.

On his motion, at an early day in the session, the subject was referred to a select committee of *eight*—one from each judicial district. The number of members in the committee was increased, and their location in the different parts of the state was regulated, in consequence of the great importance of the subject and the deep interest felt in it throughout the state.

In the formation of the committee, particular pains were taken that it should contain the most intelligent agriculturists, and the warmest friends of the farming interests which were to be found in the House; and it will be sufficient to say, that on the committee were Messrs. Graham of the 2d, Nott of the 3d, Horton of the 4th, McLane of the 7th, and Orlando Allen of the 8th; all of whom are not only practical farmers, but gentlemen of high intelligence, and deeply interested in the proposed institution.

The committee did not remain idle; but after repeated consultations among themselves, and with the prominent friends of the proposed institution in the state, at a day sufficiently early, reported a bill, drawn up with much care.

The bill was then in the hands of the House, and it was in the power of any gentleman to move it forward. But the chairman of the committee, which reports a bill, is generally expected still to give it his attention. Accordingly, on his motion, soon after the bill and report were printed, it was made *a special order* for a day some week or ten days ahead. This vote required and obtained the concurrence of two-thirds of the members.

When the day however arrived, the special order was superseded by the third reading of bills, which, under the decision of the Speaker pro tem., Mr. Dininny, took preference of all other business after it was commenced.

But the chairman of the committee did not leave the bill to its fate. At the earliest practicable day he again moved that it should be made a special order for an early day, and procured another two-third vote for that pur-

pose. Unfortunately, when the day arrived, either the House did not sit, or the special order was superseded again, as before,—the Speaker pro tem., holding that after the third reading of bills commenced, that order of business could not be laid on the table, even by the unanimous vote of the House.

It was now near the close of the session. Each member had his own bills to look after. Few were willing to make any bill, however important, a special order, save his own. But that no blame might rest on the committee or its chairman, he made one more effort to get the bill before the House, by making it a special order. This was the only mode in which it was possible to effect the object; and the motion was made with the advice, if not at the instance, of Joseph Blunt, Esq., of New-York, one of the warm friends of the bill. But, as was anticipated, it failed; the bill was not reached.

So much seems necessary, by the way of explanation, to show that there were "special champions" in the House, both ready and anxious to do all in their power to secure the passage of this most important bill, and who, in fact, *did do* all that could have been done by others. But I regret to add, that while the House treated the bill with all proper courtesy, and seemed willing to act upon it, there was a large number of members, and a majority of them active farmers, too, who were either indifferent to the bill, or actually hostile to it.

There are two facts connected with this subject which are most extraordinary.

The first is, that while two-thirds of the people of this state and the Union are engaged in agricultural pursuits, there is not on the entire continent, one institution of a high character, where a thorough and practical agricultural education can be obtained.

The other is, that while this utter destitution exists, and has been pointed out, and is seen and felt by many, a large majority even of the farmers—the intelligent farmers of this great state, who have a perfect remedy in their own power—are both indifferent to the fact, and slow to apply the remedy. While they have been willingly expending hundreds of thousands for the education of the lawyers, and doctors, and clergymen of the state, they have expended nothing for the education of themselves. May we not hope that they will do themselves justice before another winter shall have drawn to a close?

E. W. L.

Syracuse, August 14th, 1850.

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REMARKS.—We are obliged to the Hon. E. W. LEAVENWORTH for the explanation of the delay in reaching the bill at the last session of our legislature; an explanation which, from his position, he is so well able to give, and which is so entirely satisfactory.

We have heard, with a good deal of regret, many other facts which go to strengthen our correspondent's opinion, that to the lukewarmness, apathy, or indifference of the farmers themselves, more than any other cause, is to be attributed the tardy action of the legislature on this important subject.

Certainly, no *enlightened* farmer can be ignorant of the great and vital importance of such an educational institution for his children at the present day; and we should be sorry to believe that any large majority of the farmers is not sufficiently intelligent rightly to estimate the importance of education. Leaving out of the question the effects of a practical farming education on the value of land, (a thing as yet unknown in this country, but which has actually *doubled* the amount of farm products in England within thirty years past,) the farmer should remember that in our republic, knowledge is the element of personal power; and that his uneducated sons, "who work the farm," are forced to hold an inferior place, both in life and society,

while young men of equal calibre, educated for the professions, make the very laws which govern the farmers, and control and govern the whole civilization and progress of the age.

If the farmers of the present day are content that their sons shall be looked upon twenty-five years hence, not only by all the professions, but all the other industrial bodies of the people, (who are all stirring in the matter of mental improvement,) as their inferiors, then they have only to regard with utter indifference all plans for sound agricultural schools. Ed.

NOTES ON THE BEST ORNAMENTAL TREES.

BY AN ARBORICULTURIST, NEW-YORK.

It has occurred to me that at this, the season for planting trees, some hints from a planter of twenty years' experience, who has studied somewhat the effect of trees in the embellishment of country places, might not be unacceptable to some of your less experienced readers. To the *veterans* in arboriculture, I have nothing to say, for the reason that it is quite probable that they could teach me.

One of the points least observed by young planters, is the *habit* of trees, as regards coming early into leaf, and holding the foliage till late in the fall. What a valuable property is this, which gives us, in such trees, almost six weeks more of apparent summer than others; since no one can feel that summer, or even spring, has come, till the foliage of the trees is fully expanded. In the case of country places that are used merely as summer retreats, by citizens who pass eight months of the year in cities, this is not important; for even the Catalpa and the Kentucky Coffee—those two *laziest* trees in the northern states—will be in leaf by the time June and the citizens have saluted each other in the country. But for those who live in the country all the year round, it is important that the scenery round the house, which meets the eye daily, should be composed mostly of what I would call the reliable ornamental trees, for the northern states,—trees quite hardy, of excellent persistent foliage, rapid growth, and other valuable properties, as regards foliage and form.

I. The best foliaged Trees. American Elm.—By this, I mean our native drooping elm, which, though common in various parts of the country, can never be too common; and which, whether for grace, beauty, freshness and depth of foliage, or rapid growth, stands at the head of all trees that grow in this climate.

The Dutch, or Cork Elm, ranks next to the foregoing. It is even a more luxuriant grower, and, though by no means so graceful, is still a fine tree, with a mossy head of dark green foliage, remaining quite green till the frosts have stripped almost every other tree. The *English Elm* has something of the same habit, while the *Scotch Elm* (I believe all these are now in the nurseries,) is more like our Weeping Elm.

The Negundo Tree—usually called the Ash-leaved Maple; a charming clean tree, with an airy and pretty habit of growth, forming a wide, rather than a lofty head. Its great merit is the lively cheerful tint of its leaves, which, being paler or tenderer in colour than those of most trees, afford a fine contrast to elms and oaks; hardy, a free grower, and very easily transplanted. It is one of the first to come into leaf; and its

pretty, pendulous, light green blossoms, much like currant blooms, make their appearance, to gladden the heart of the planter even before the foliage.

Silver Maple.—A tree much planted, and well known in Pennsylvania and New-Jersey; very little known in any other of the northern states. Certainly, it is the prettiest of the maples in its graceful habit, as well as the most rapid growing, though it has not the rich colouring of the Sugar Maple in autumn,—the leaves dying of a pale yellow. The Sugar and the Soft or Red-blossomed Maples are also most deserving trees; but when immediate effect is wanted, the Silver Maple should be planted in preference.

English Sycamore Maple.—A fine hardy tree, which, I am sorry to say, is yet by no means common in this country. Its fine, large, and broad leaves, coming out early and hanging till late, make it a capital standard tree for the lawn or pleasure ground.

Weeping Birch.—A Scotch tree, very graceful in the landscape, with light airy foliage and pleasing habit.

Weeping Willow.—In the middle states this is a very valuable tree; at the extreme north it is rather delicate. The very first tender green tree leaves that salute the longing eye, when winter is fairly past, are those of the willow, as well as the last that defy the frost in autumn. Very rapid growth, and much grace of outline, are additional good qualities. Undoubtedly the willow, like the Lombardy Poplar, should never be *abundantly* planted in any country place. Such marked and peculiar trees, like great generals, should never be made common and vulgar, by assembling too many of them in one *review;* though a few of them, certainly one or two, in a rural landscape, *tell* admirably. Where there is water in the scene—such as a lake, pond, or river—the willow, which so essentially belongs there, may be more multiplied. It is a mistake, however, to suppose that the tree will not grow in dry soil. In a good, deep, dry soil, few trees thrive better or make wood faster than the Weeping Willow. It is only in *thin*, dry soil that it fails.

Tulip Tree.—Though this can hardly be called an *early* tree, neither can it be deemed *late*, as its leaves come out soon after those of the maple, its great *elegance* of habit, and striking beauty of leaf and blossom, recommend it to every planter who has an eye for fine proportions. It is quite shy of removal when large; and I therefore recommend planters to choose small specimens, four or five feet high, from the nursery. Once established in deep soils, it advances with great rapidity; and whether young or old, there are few finer things to gaze upon than a tulip tree, standing on an open lawn, where it can expand freely on all sides.

The Common Chestnut.—I never see this noble tree planted; and the reason is, because it is one of the commonest trees in the woods. And yet, how few of us know how majestic and grand is a chestnut, grown on a lawn where there is "ample room and verge enough;" where it can form a gigantic and massy head, like a great globe. Certainly, the American chestnut is a more *beautiful* large tree than the oak; since, to equal grandeur of proportions, it adds greater variety of tint. Few things are finer than a group of chestnuts, in full tassel; and few trees afford a finer shade, or attain a large size more rapidly. If a little pains were taken to select the largest and finest nuts to sow, a great improvement might be made in the size and quality of the fruit.

The Purple Beech.—All the beeches are fine trees; but the true Purple Beech is a very valuable tree in the landscape, as its colour is a bold contrast to the uniform green tint of most other deciduous trees. If the soil is well trenched, and made light and

rich, and especially if dressed with wood ashes occasionally, it gets on pretty rapidly, and soon makes a figure, so that it is sure to be inquired about by the dullest observer.

Weeping Ash.—A striking ornament to the lawn or pleasure grounds, especially if grafted high; the foliage a good colour, and the tree very picturesque.

The European Ash is a decidedly handsome and valuable tree,—perhaps more ornamental in pleasure grounds, while under 30 feet high, than any of our American ashes. The *Mountain Ash* is a distinct tree, very ornamental in its coral berries during summer. It is not quite reliable, however, in its foliage, as it is apt, in light soils, to cast its leaves rather early in the autumn.

The European Larch may, I think, be safely put down as an ornamental tree of standard value in this climate. Its buds expand early, and only late frosts cause the leaves to fall. It suits light and poor soils better than almost any other tree.

II. Fine Ornamental Trees with certain drawbacks.—Among these, I should say the Linden and the Horse Chestnut are the most conspicuous. Both these make very superb single trees in the park or pleasure grounds; and upon deep rich soils—strong loams—they hold their foliage well all the season. In thin or light soils, especially if dry, they frequently become yellow early in the autumn; but he whose planting is confined to such soils, will therefore not wholly deny himself the pleasure of planting such trees as these, only he will not plant them in the nearer and more highly kept parts of the scenery about the house. The Catalpa, the Locust, the Acacia, the Kentucky Coffee, and the Paulownia—all which expand their leaves quite late in the season, should also be confined to the walks of the pleasure grounds or the *secondary* groups of the plantations; I mean secondary, as regards the scenery about the house, so that the foreground, in spring, may not be made to look wintry still, by the presence of dead looking trees, while all around are in full verdure.

I have said nothing as yet about Magnolias, though they are the pride of our pleasure grounds. They must, however, be looked upon as *specialities*, requiring a little more attention, as to soil and site, at first, than other trees, though no more care after they are once established. They need a deep, rich, dry soil, *well drained*, and with about a fourth of well decomposed black earth, peat, or rather leaves intermixed. The most easily cultivated and showy sort in its foliage and flowers, is the Umbrella magnolia, (*M. tripetala;*) the handsomest in its flowers, the Chinese White, (*M. conspicua;*) and the sweetest, the Swamp Magnolia, or *M. glauca*. These are all hardy wherever the Isabella grape will ripen, and are certainly well worthy of a place in every garden.

Among really interesting ornamental trees, I must not forget the *Ginko*, or Salisburia—the curious tree from Japan, which grows almost as freely as a poplar in the middle states, and is quite as hardy. Nothing can be more unique than its foliage, or more interesting than the fact, that it stands midway in structure between deciduous and evergreen trees.

I ought to say something about Oaks; and I would do so, if I thought I could persuade your readers to plant them. But American forests are richer in species of this king of trees than all the rest of the world; and I suppose, for that very reason, Americans will not plant oaks—as yet. Perhaps when the forests have become sparse, we shall more rightly value the different beautiful kinds, which not one in ten knows even by name yet!

There are, however, two species of oak, so distinct and so ornamental in plantations that

they should receive attention even now. One is the *Overcup Oak*, of the western states, with fine large foliage and immense acorns; and the other, the *Willow Oak*, of New-Jersey and the states south of it, with very narrow and distinct foliage. Trees of these may be had in many nurseries, and are worthy of a conspicuous place in the landscape garden.

I intended to say something about evergreen trees of merit; but fearing to be deemed tedious, I leave it for another letter.

AN ARBORICULTURIST.

New-York, October, 1850.

A FEW NOTES ON ROOT-PRUNING.

BY JAMES STEWART, MEMPHIS, TENN.

I SAW in one of your numbers an article on root-pruning, from the pen of Mr. ERRINGTON; and as little has appeared from your correspondents, I judge the importance of it is still little known. You have many talented writers on bark-binding, bark-bursting, gumming, diseases of the leaf, fire-blight, &c. But as I think many of these writers have not gone to the root of the matter, I beg you to allow me to make a few remarks, bearing on all those diseases. At the same time, I will endeavor to explain the system I practice, and give its results.

The roots, and the soil in which they are in—the one to take up the food—the other to contain it—these are the most important points; and accordingly, the tree flourishes in health, or is corrupted by disease in all its forms. I will remark, in the onset, that it is the lot of some persons to have to do with an excellent deep soil, calculated to grow anything their climate will produce. These have their pears, apples, plums, cherries, &c., all growing most luxuriantly. They have probably been planted long enough to yield fruit, but never before done so. The trees are in good health, are pruned every year, yet there are no signs of fruit. It is wholly because they have entirely given way to luxuriant growth. This must be checked, to bring them into a fruitful condition by root-pruning. You may ring them, or apply a host of other *above-ground* remedies; but you still have the same source of over-luxuriance at the root. Mr. E.'s system of pruning with the knife is good, but I fear calculated to involve too much labor and trouble. Thinking we need something here more easily accomplished, I have adopted the following plan:

I take a spade and axe, and dig round the tree to the distance of from one to two feet from the main mass of roots, and cut away every root I meet, leaving only the fibres that are within that circle, if any. Close the trench, and proceed till you get over them all. At such a time, it is best to cut away, or shorten-back, the superabundant top, leaving the tree light and well shaped.

In a second instance, the fruit-grower may be obliged to leave his tree on a low, and, of course, damp situation. His trees grow well, for a few years, but lately they have spots and diseases in the leaf; yellow-pointed, thick and watery shoots. The diseased parts are, perhaps, cut away, but yet the remainder keep getting worse. The roots, in this case, have got into, and are feeding on the stagnant gases of a sour, uncultivated soil, which has, possibly, never been broken up, in order that the air might pulverise, purify and sweeten it. Here, trench round the tree to the depth of two feet, (beginning as close as you can to the

trunk,) to a width proportionate to the size of the tree, thoroughly reversing the soil, by turning that which is well sweetened to the bottom, and leaving the bottom, when turned, on the top, rough and loose. I need not add, that a drain or two will permanently mend matters. Meantime, cut away the roots, as in the first instance.

Another case, may be one upon a good open elevation, but the soil not deep, the bottom a red clay. Here, the trees do well for a time; but at length they get stunted in growth, bark-bound, the bark bursts, the fruit is not good for anything,—being cracked and deformed. In such a case, trench, as in the second instance, substituting an equal bulk of good soil for the superabundance of clay, which must be taken out, cutting all roots as before, and so on, according to the nature, the depth, and quality of the soil. So will you find the condition of your trees in different instances; by tracing the roots, you will find some dead and rotting at the points, some swollen to a great thickness, others with two or three coats of rusty-like bark; all of which produce a bad effect upon the growth and fruit of the tree, which is the cause of nine out of ten of the diseases by which fruit trees are so much affected at the west — bark-binding and bark-bursting. I never knew the bark of trees, after the second year of root-pruning, give way in the slightest, even when slit with the knife, although formerly the bark of the same trees opened almost faster than the knife could proceed.

Ten years' practical experience has taught me the vast importance of root-pruning, on all soils not naturally favorable to sound growth and the production of fruit.

JAMES STEWART.

Memphis, Tenn., October, 1850.

MR. DOWNING'S LETTERS FROM ENGLAND.

CHATSWORTH, the magnificent seat of the DUKE OF DEVONSHIRE, has the unquestionable reputation of being the finest private country residence in the world. You will pardon me, then, if I bestow a few more words on it, than the passing tourist is accustomed to do.

I ought to preface my account of it by telling you that the present Duke, now about sixty, with an income equal to what passes for a very large fortune in America, has all his life-time been remarkable for his fine taste, especially in gardening; and that this residence has an immense advantage over most other English places, in being set down in the midst of picturesque Derbyshire, instead of an ordinary park level. In consequence of the latter circumstance, the highest art is contrasted and heightened by the fine setting of a higher nature.

If you enter Chatsworth, as most visitors do, by the Edensor gate, you will be arrested by a little village — Edensor itself; a lovely lane, bordered by cottages, just within the gate, that has been wholly built by the present Duke. It is quite a study, and is precisely what everybody imagines the possibility of doing, and what no one but a king or a subject with a princely fortune, and a taste not always born with princes, could do. In short, it is such a village as a poet-architect would design, if it were as easy to make houses of solid materials as it is to draw them on paper. There may be thirty or forty cottages in all, and every one most tasteful in form and proportions, most admirably built,

and set in its appropriate frame-work of trees and shrubbery,—making an *ensemble* such as I saw nowhere else in England. There are dwellings in the Italian, Gothic, Norman, Swiss, and two or three more styles; each as capital a study as you will find in any of the architectural works, with the advantage which the reality always has over its counterfeit.

From this little village to Chatsworth house, or palace, is about two miles, through a park which is a broad valley, say a couple of miles wide by half a dozen long. It is indeed just one of those valleys which our own DURAND loves to paint in his ideal landscapes, backed by wooded hills and sylvan slopes, some 300 or 400 feet high, with a lovely English river—the Derwent—running like a silver cord through the emerald park, and grouped with noble drooping limes, oaks, and elms, that are scattered over its broad surface. After driving about a mile, the palace bursts upon your view—the broad valley park spread out below and before it—the richly wooded hill rising behind it—the superb Italian gardens lying around it—the whole, a palace in Arcadia. On the crest of the hill, from the top of a picturesque tower, floats the flag which apprises you that the owner of all that you see on every side—the park of twelve miles' circuit, (filled with herds of the largest and most beautiful deer I have yet seen,) valley, hills, and the little world which the horizon shuts in—is at home in his castle.

The palace is a superb pile, extending in all some 800 feet. It is designed in the classical style, and is built of the finest material,—a stone of a rich golden brown tint, which harmonizes well with the rich setting of foliage, out of which it rises.

CAVENDISH, is the family name of the DUKE OF DEVONSHIRE, and this estate became the property of SIR W. CAVENDISH, in the time of ELIZABETH. The main building was erected by the first Duke in 1702, and the stately wings, containing the picture and sculpture galleries, by the present Duke. Every portion, however, is in the finest possible order and preservation; and it would be difficult for the stranger to point out which part of the palace belongs to the eighteenth, and which to the nineteenth centuries.

You enter the gilded gates at the fine portal at one end of the range, and drive along a court some distance, till you are set down at the main entrance door of the palace. The middle of the court is occupied by a marble statue of Orion, seated on the back of a dolphin, about which the waters of a fountain are constantly playing. From the chaste and beautiful entrance hall rises a broad flight of stairs, which leads to the suite of state rooms, sculpture gallery, collection of pictures, etc.

The state rooms—a magnificent suite of apartments, with windows composed each of one single plate of glass, and commanding the most exquisite views—are hung with tapestry, or the walls are covered with stamped leather, enriched with gilding. In these rooms are the matchless carvings in wood, by Gibbons, of which, like everybody else curious in such matters, I had heard much, but which fairly beggar all praise. No one can conceive carving so wonderfully beautiful and true as this. The groups of dead game hang from the walls with the death flutter in the wings of the birds, and a bit of lace ribbon, which ties one of the festoons, is—more delicate than lace itself. The finest pictures of Raphael could not have *astonished* me so much as these matchless artistic carvings in wood.

A very noble library, a fine collection of pictures, and the choicest sculpture gallery in England, (over 100 feet long, especially rich in the works of CANOVA, THORWALSDEN, and CHANTREY,) a long corridor, completely lined with original *sketches* by the great mas-

ters, and a very richly decorated private chapel, are among the show apartments of Chatsworth.

So much of the palace as I have enumerated, along with all the out-of-door treasures of the domain, is generously thrown open to the public by the Duke; and you may believe that the opportunity of gratifying their curiosity is not thrown away, when I tell you that upwards of 80,000 persons visited Chatsworth last year. Having heard this before I went there, I fancied the annoyance which all this publicity must give to the possessor and his guests. But when I saw the vast size of the house, and how completely distinct the rooms of the guests and the private apartments of the Duke are, from the portion seen by the public, I became aware how little inconvenience the proper inmates of the palace suffered by the relinquishment of the show rooms. The private suite of drawing-rooms, appropriated to the guests at Chatsworth, is decorated and furnished in a far more chaste and simple style than the state rooms, though with the greatest refinement and elegance. Among these adornings, I observed a superb clock, and some very large vases of green malachite, presented by the EMPEROR OF RUSSIA; LANDSEER'S original picture of Bolton Abbey, and that touching story of BELISARIUS—old, blind, and asking alms—told upon canvass by MURILLO, so powerfully as to send a thrill through the dullest observer.

In the ground floor, opening on a level with the Italian gardens, is the charming suite of apartments, occupied chiefly by the DUKE when his guests are not numerous. Nothing can well be imagined more tasteful than these rooms,—a complete suite, beginning with a breakfast-room, and ending with the most select and beautiful of small libraries, and including cabinets of minerals, gems, pictures, etc. The whole had all that snugness and cosiness which is so exactly opposite to what one expects to find in a palace, and which gave me the index to a mind capable of seizing and enjoying the delights of both extremes of refined life. The completeness of Chatsworth House, as you will gather from what I have said, is that it contains under one roof, suites of apartments for living in three different styles—that of the palace, the great country house, and the cottage orneé. With such a prodigality of space, you can easily see that the DUKE can afford, for the greater part of the year, to throw the palace proper, i. e., the state rooms, open to the enjoyment of the public.

The next morning after my arrival at Chatsworth, was one of unusual brilliancy. The air was soft, but the sunshine was that of our side of the Atlantic, rather than the mild and tempered gray of England. After breakfast, and before making our exploration of the gardens and pleasure grounds, the DUKE had the kindness to direct the whole wealth of fountains and *grandes eaux* to be put in full play for the day,—a spectacle not usually seen; as indeed the Emperor fountain is so powerful and so high that it is dangerous to play it, except when the atmosphere is calm.

We enter the Italian gardens. And what are the Italian gardens? you are ready to inquire. I will tell you. They are the series of broad terraces, on two or three levels, which surround the palace, and which, containing half a dozen acres or more of highly dressed garden scenery, separate the pleasure grounds and the house from the more sylvan and rural park. As the house is on a higher level than most of the valley, you lean over the massive Italian balustrade of the terrace, (all of that rich golden stone,) and catch fine vistas of the park scenery below and beyond you. Of course, the Italian gardens are laid out in that symmetrical style which best accords with a grand mass of architecture, and

are decorated with fine vases, statues, and fountains. A pretty effect is produced by avenues of Portugal laurels, grown with single stems and round heads, like the orange trees that always border the walks of the gardens of the continent; and the DUKE mentioned, in passing, that the PRINCE and PRINCESS BORGHESE, who had been guests at Chatsworth but a few days before, had really mistaken them for orange trees. But one point where the Italian gardens of Chatsworth must always be finer than any in Italy, is in the carpet of turf which forms their ground work. The "velvet turf" of England is world-wide in its reputation; but no one, till he sees it as it is here—short, tufted, elastic to the tread—can realize that the phrase is *not* a metaphor. A surface of real dark green velvet of a dozen acres, would scarcely soothe the eye more, by its look of softness and smoothness, than the turf in the Italian gardens at Chatsworth.

But the crowning glory of Chatsworth, is its fountains. In a country where water is always scarce, a situation that affords a pretty stream, or a small artificial lake, is a rarity. But the whole of the hill, or mountain, that rises behind the house and pleasure grounds, is full of springs, and has been made a vast reservoir, which is perfectly under command, and fulfils its purposes of beauty as if it were under the spell of some enchanter. If you will suppose yourself standing with me on the upper terrace of the Italian gardens that morning, behind you rises up the palace, stately and magnificent; all along its front of 800 feet, those gardens extend—a carpet of velvet, divided by broad alleys, enriched by masses of the richest flowers, and enlivened by fountains of various forms, sparkling in the sunshine like silver. Before you, also, stretches part of these gardens—a part in which the principal feature is a mirror-like lake, set in turf, and overhung by a noble avenue of drooping lime trees—beyond which you catch a vista of the distant hills.

Out of this limpid sheet springs up a fountain, so high that, as you look upward and fairly hold your breath with astonishment, you almost expect it, with its next leap, to reach the sky; and yet, with all this vast power and volume, it is so light, and airy, and beautiful, and it bursts at the top, and falls in such a superb storm of diamonds, that you will not be convinced that it is not a production of nature, like Niagara. This is the Emperor Fountain—the highest in the world; about the height, I should say, of Trinity Church spire.* It is only suffered to play on calm days, as the weight of the falling water, if blown aside by a high wind, would seriously damage the pleasure grounds.

As the eye turns to the left, the wooded hill, which forms the rich forest back-ground to this scene, seems to have run mad with cataracts. Far off among the precipices, near its top, you see waterfalls bursting out among the rocks,—now disappearing amid the thick foliage of the wood, and then reappearing lower down, foaming with velocity, and plunging again into the dark woods. Towards the base of the hill stands a circular water-temple, out of which the water rises. It gushes out as if from the hydrant of the water gods, and, running down a slope, falls at the back of the gardens down a long flight of very broad marble steps, that lead from the water-temple to the edge of the pleasure ground, so as to give the effect of a waterfall of an hundred or more feet high. This wealth of water, as if some river at the back of the mountain had broke loose, and, after wild pranks in the hills, had been forced into order and symmetry in the pleasure

* The height of the Emperor Fountain is 267 feet. The next highest fountains in the world, are one at Hesse Cassel, 190 feet; one at St. Cloud, 160 feet; and the great jet at Versailles, 90 feet.

grounds, gives almost the tumult and excitement of a freshet in the wilderness to this most exquisite combination of garden and natural scenery.

Leaving the point—where you take in, without moving, all this magical landscape—you wander through flower gardens, and amid pleasure grounds, till you reach a more wooded and natural looking *paysage*. The fountains, the carefully polished Italian gardens, are no longer in view. The path becomes wild, and, after a turn, you enter upon a scene the very opposite to all that I have been describing. You take it for a rocky wilderness. The rocks are of vast size, and indeed of all sizes; with thickets of Laurels, Rhododendrons and Azaleas growing among them, Ivy and other vines climbing over them, and foot-paths winding through them. From the top of a rocky precipice, some 30 feet high, dashes down a waterfall, which loses itself in a pretty meandering stream that steals away from the foot of the rock. Nothing can well look wilder or more natural than this spot; and yet this spot, the "rock-garden," of six acres, has all been created. Every one of these rocks has been brought here—some of them from two or three miles away. It is just as wild a scene as one finds on the skirts of some wooded limestone ridge in America. Though it was all made a few years ago, yet now that the trees and shrubs have had time to take forms of wild luxuriance, all traces of art are obliterated. The eye of the botanist only, detects that the masses of laurels are rare Rhododendrons, and that beautiful Azaleas of the Alps* make the underwood to the forest that surrounds it.

You wish to go onward. We will leave the rock-garden by this path, on the side opposite to that which we entered. No, that, you see, is impossible; a huge rock, weighing 50 or 60 tons, exactly stops up the path and lies across it. Your companion smiles at your perplexity, and with a single touch of his hand, the rock slowly turns on its centre, and the path is unobstructed! There is no noise, and nothing visible to explain the mystery; and when the rock has been as quietly turned back to its place, it looks so firm and solid upon its base, that you feel almost certain that either your muscles or the rocks themselves obey the spell of some unseen and supernatural wood spirit.

One of the greatest beauties at Chatsworth lies in the diversity of surface—the succession of hill and dale, which, especially in the pleasure grounds, continually occurs. This variation offers excellent opportunities for the production of a succession of scenes, now highly ornate and artistic, like the flower gardens, now romantic and picturesque like the rocky valley. And as we continue our ramble, after entirely losing sight of the wild scene I have just described, we enter upon another still different,—a wide glade or opening, like an amphitheatre, in the midst of a fine grove of trees. An immense palace of glass rises before us. Its curved roof, springing 70 feet high, gleams in the morning sun; and you would be at a loss to conceive for what purpose this vast structure was intended, did you not see, as you approached by the indistinct forms of the foliage, that it encloses another garden. This is the great conservatory, which is 300 feet long, and covers rather more than an acre of ground. Through its midst runs a broad road, over which the DUKE and his guests occasionally drive in a carriage and four. All the riches of the tropics are grown here, planted in the soil, as if in their native climate; and a series of hot-water pipes maintain, perpetually, the temperature of Cuba in the heart of Derbyshire. The surface is not entirely level, but there are rocky hills and steep walks winding over them; and

* *Azalea*, or, rather, *Rhododendron hirsutum* and *ferrugineum*; two beautiful sorts, perfectly hardy.

lofty as the roof is, some of the palms of South America have already nearly reached the glass. From the branches and trunks of many of the largest, hang curious air plants, brilliant, and apparently as little fixed to one spot as summer butterflies.

But I shall never bring this letter to a close, if I dwell even slightly upon any interesting scene in detail. I must mention, however, in passing, the *arboretum*—perhaps a mile long—planted with the rarest trees, and every day becoming richer and more interesting to the botanist and the landscape gardener. The trees are neither set in formal lines, nor grouped in a single scene, but are scattered along a picturesque drive, with space enough for each to develop its natural habit of growth. There are some very graceful Deodar Cedars here, and a great many Araucarias. But the two most striking and superb trees, which I nowhere else saw half so large and in such perfection, were Douglass' Fir, (*Abies Douglassi*,) and the noble Fir, (*Abies nobilis*.) They are two of the magnificent evergreens of California and Oregon, discovered by DOUGLASS, and brought to England about 18 years ago. These two specimens are now about 35 feet high, extremely elegant in their proportions, as well as beautiful in shape and colour. I cannot describe them, briefly, so well as by comparing the first to a gigantic and superb Balsam Fir, with far larger leaves, a luxuriance and freedom always wanting in the Balsam, together with the richest dark bronze green foliage; and the latter to the finest drooping Norway Spruce, equally multiplied in the scale of luxuriance and grace. They grow upon a rocky bank, overhanging a pool of clear water, and look as if thoroughly at home, on the slope of a hill side in Oregon.

The arboretum walk forms a complete collection of all the hardy trees that will grow out of doors at Chatsworth, with space for planting every new species as it may be introduced into Great Britain. A fine effect is produced by grafting the Weeping Ash into the top of a common ash tree with a tall trunk 30 feet high, whence it falls on all sides more gracefully and prettily than when grafted low; a hint that I laid up for easy practice at home.

A mile further on, and you reach the tower, on the hill top, where the eye commands the whole of Chatsworth valley,—such a picture of palace and pleasure ground, park and forest scenery as can be found, perhaps, nowhere else in the circle of the planet.

After a long exploration—after exhausting all the well bred expressions of enthusiasm in my vocabulary, and imagining that it was impossible that landscape gardening, and embellishment, and park scenery, and pleasure ground decoration, could farther go — the DUKE reminded me that I had neither seen the kitchen gardens, the great peach tree, nor the famous new water lily—the *Victoria regia*; and that Mr. PAXTON, his able *chef*, would never forgive a neglect of so important a feature in a place. As the gardens where all these new wonders lay, were quite on the opposite side of the park, we gladly took to the carriage after our industrious morning's ramble.

I shall not attempt to describe these large and complete fruit and forcing gardens. But the peach tree of Chatsworth has not, to my recollection, been described, though it deserves to be as famous as the grapevine of Hampton Court. It is the more wonderful, because, as you know, peach trees do not grow in England in orchards of 500 acres, like those of the REYBOLD'S, in Delaware; but are only seen upon walls, or under glass Yet I assure you, our friend R.'s eyes, accustomed as they are to peach blossoms by the mile, would have dilated at the sight of this monster tree, occupying a glass house by itself, and extending over a trellis—I should

say a hundred feet long. I inquired about the product of this tree, and when the number was mentioned, I imagine His Grace detected a slight smile of incredulity; for he begged Mr. PAXTON to copy for me, and subscribe his name to, the accurate statistics of the present crop. I send it to you in a note,* with the addition, that the fruit was of the variety known as the Royal George, very large, and finer flavored than I had before tasted from trees grown under glass. The whole trellis, from one end to the other, was most admirably clothed—not a vacant place to be found.

Of the superb water lily, lately discovered in Brazil, and named *Victoria Regia*, in honor of the Queen, you have already published an account. It has grown and bloomed here more perfectly than elsewhere; though there are, also, good specimens at the DUKE OF NORTHUMBERLAND'S, and at Kew. The finest plant here occupies a house built specially for it, 60 by 45 feet, enclosing a small pond 33 feet in diameter for it to grow in. The plant is, unquestionably, the most magnificent aquatic known. The huge circular leaves, 4 to 5 feet across, are like great umbrellas in size; and the blossoms, as large as a man's hat—pure white, tipped with crimson—float upon the surface with a very queenly dignity, as if ready to command admiration. A small frame or board was placed on one of the leaves, merely in order to divide the weight equally as it floated; and it upheld the weight of a man readily. Some seeds were presented to me of this beautiful floral amazon before I left Chatsworth; but as it requires the tank to be heated to a temperature of 85°, and the water kept constantly in motion by a small wheel, I fear I shall not readily find an amateur in the United States who will be inclined to indulge a taste for so expensive a floral fancy.*

The kitchen and forcing grounds are on an immense scale, and some handsome fruit was being packed to go as a present to the Queen. The pines were unusually large and fine; and the DUKE remarked that Mr. PAXTON has reduced the cost of producing them two-thirds, since he has had charge of that department,—some ten or twelve years.

If, after this lengthy description, I have almost wholly failed to give you an idea of Chatsworth, it is not wholly because my pen is not equal to the task. Something must be allowed for the difficulty of presenting to you any adequate notion of the variety, richness, and completeness of an estate, where you may spend many days with new objects of interest and beauty constantly before you; objects which, only to enumerate, would be presenting you with dry catalogues, instead of living pictures, brilliant and varying as those of the kaleidoscope.

And, I think I hear you say, this is all for the pride and pleasure of a single individual! All this is done to minister to his happiness. Not entirely. The DUKE OF DEVONSHIRE has the reputation, very deservedly, I should think, of being second to no man in England for his benevolence, kind-heartedness and liberality. Certainly, I think I may safely say, that Chatsworth shows more *refined taste*, joined to magnificence, both externally and internally, than any place I have ever seen. When one sees how many persons are constantly employed in the various works of improvement on this single estate, and how cheerfully the whole is thrown open to the

* "*Memorandum of Peaches, borne by the Great Peach Tree at Chatsworth, in* 1850.—Fruit thinned out at various times before maturity, 7801; do. left to ripen, 926; total crop, 8727.
JOS. PAXTON."

* If your readers were not already so well aware of Mr. PAXTON'S reputation, as one of the most scientific English horticulturists of the age, I should say more of his extraordinary ability, as shown at Chatsworth. His plan for the edifice now being erected in Hyde Park, for the great industrial exhibition of 1851, was adopted in preference of those offered by a number of the most eminent architects. It is to be wholly of glass and iron, and will cover about 21 acres of ground. There is little doubt that when the exhibition is over, it will be turned into the grandest *winter garden* in the world.

study and enjoyment of thousands and tens of thousands annually, one cannot but concede a liberal share of admiration and thanks to a nobleman who might follow the example of many others, and make his home his closed castle; but who prefers, on the other hand, to open, like a national picture gallery, this magnificent specimen of landscape gardening and architecture, on which his fine taste and ample fortune have been lavished for half a century. One has only to visit Windsor and Buckingham Palace *after* Chatsworth, to see the difference between a noble and pure taste, and a royal want of it. The one may serve to educate and reform the world. The utmost that the other can do, is to dazzle and astonish those who cannot recognize real beauty or excellence in art.

A. J. D.

Derbyshire, August, 1850.

Is Hard Pressed Soil better adapted to the Growth of Plants than Porous Soil?

BY THOS. MEEHAN, PHILADELPHIA.

In your highly interesting account of Mr. Rivers' nursery in your last, you gave an account of the manner in which one of the most celebrated English market gardeners, (Wilmot, I presume,) successfully practices the forcing of the strawberry. The soil in the pots is pounded down *quite hard* with a mallet, and in it the plant soon strikes root, and fills the pots with an abundance of fibres.

You invite your readers to speculate upon, and explain this new problem in horticulture. I am delighted at your invitation—not because I feel that I can explain its cause, or that I can offer any speculative hypothesis; but because you have, in that invitation, placed before the horticultural world a subject for its consideration, which I have unsuccessfully studied for years. I am delighted, because it will doubtless be the means of attracting together such a mass of facts, observations, and opinions, that I may be enabled to form some rational theory on a subject I have had so long under consideration.

I am sure that you, Mr. Editor, in the course of your long and varied experience, must frequently have observed the truth of an axiom, delivered by that great man, who has so recently gone from amongst us—Kirby, the entomologist,—that "facts, in themselves seemingly trifling, are often of the greatest importance to the physiologist and natural philosopher." I have found that this is true; and so, doubtless, have many of your readers. The firmly pressed soil in Wilmot's strawberry pots, may lead to results as great in the practice of horticulture, as the falling of an apple has been to the science of astronomy; or the lifting by steam of a kettle lid, has been to mechanical knowledge. I have not much to throw into your treasury of knowledge on this subject; but I send in the best contribution I can just now afford.

My first observations are connected with the unfortunate potato. It was not long after my good father had permanently taken me with him, to teach me the beautiful intricacies of the various branches of his profession, that we were walking together through our farm, where the men were digging potatoes. In this field, were crops of salsify, scorzonera, carrots, parsneps, beets, and other kitchen stuff, which were mostly in daily requisition, and this with other reasons for crossing it, combined to make the *headlands* quite a road,—so much so, that perhaps for four or six feet wide, the potatoes were often trodden under

foot, and the ground about them rendered very hard. I pointed out to my father that the potatoes dug out of this strip were full one-third larger than the others, and inquired the reason. He gave it as his opinion, that the action of the plough,—drawing the manure towards the headlands, and the soil, from the same cause, being deeper there, the production of superior potatoes was the consequence. This partly satisfied me; but I never could entirely disconnect the idea of the big lumps of hard solid earth from the large potatoes.

The year following, another circumstance recalled this observation. My father's vegetable gardener, in drilling in some onion seed, spilled some on the alleys between the beds. In forming these alleys, the ground was, of course, much trodden; but the accidentally spilled seed produced onions twelve and fourteen inches in circumference, which, in that latitude (Isle of Wight,) was above the average. Sometime after that, I observed a similar circumstance attending a crop of carrots. Those which had grown in the neighborhood of some gooseberry trees, where the soil had been trodden down while gathering the green fruit, were much finer than the others. To get some explanation of these effects, I studied LEE and LINDLEY, MAIN, RENNIE, and whatever other writer on vegetable physiology I could lay my hands on; but the conclusions my facts seemed bent on leading me to, were so opposite to every principle seemingly laid down by these writers, that I then doubted the accuracy of my youthful judgment, and suffered the subject to sleep in my breast for some time.

Shortly after I became attached to the Royal Gardens at Kew, the question of the "one-shift," against the old or "progressive" system of potting plants, was started by Mr. W. P. AYRES, of Brookland, near London. While the discussions on these questions were pending, one of my most intelligent corresponding friends, then attached to the Royal Gardens of Frogmore, wrote me an account of a visit to one of the ablest advocates of the one-shift system. He highly eulogized the appearance of the heaths; but at the same time, he suggested that the success many of the one-shift men had met with, in the fine growth of their plants, was owing more to the greater care taken to render the *mechanical condition* of the soil more perfect, than the followers of the "progressive" usually took. He particularly stated that the soil used by this grower was rammed into the pots most intensely; and that from what he there saw, he was satisfied that this was an essential point in the cultivation of the heath. They who were at Kew at the same time as I, will recollect the amusement the practice of our working foreman afforded us, in pounding and hammering the soil so vehemently around the plants he re-potted—so different from the practice we had experienced elsewhere. Yet, that amusement over, I am sure they will agree with me, that the majority of the plants in the Kew Gardens (though from the immense number of plants grown there, fine specimens must want room,) make as thrifty and as handsome shoots as any similar plants in any collection.

I will detail but one more fact, as I fear I am wearying your patience. When foreman to Mr. BUIST, at his fine new establishment at Rosedale, two or three miles from Philadelphia, it was necessary to pot between two or three hundred dwarf roses in wid-winter. It so happened, that from circumstances attendant on the formation of a nursery of such a large extent as this, the only soil we could use at that moment was frozen through. It was thawed by the fire, and, of course, became perfect mud. This was mixed with one-half rotten dung, and placed in the pots around the roots quite full, without being subjected

to the slightest pressure. Afterwards, these were placed in a cool pit. They received no water for six weeks. The soil was then rammed down as tightly as it could be made, and afterwards well watered. No roses ever made a more handsome growth than these did in this finely pressed and pounded soil.

My practice has been much modified by these and similar observations, though I have no satisfactory explanation of the reason why; but theory must hang on skirts of practice sometimes. I await further observation.

I may remark, ere I conclude, that agriculturists are, for once, ahead of us. Since the appearance of Stephens' "Book of the Farm," they know the preference to be given to firm soil, over that which is loose and porous. To those who may not have this valuable work, the sentence to which I allude may be interesting. Under the head of wheat, he says,—"The land receives only one furrow after potatoes; and it should have time to subside a little before it is sowed, though the usual practice is to sow the wheat upon it as ploughed. The reason why I have so frequently recommended the subsidence of the land before sowing the seed, is, that wheat thrives much better in soil having a little firmness in it, than in the loose state the plough leaves it."—(Stephens' Book of the Farm, vol. ii, page 417,—cheap American edition by the editor of the Plough, the Loom, and the Anvil, Philadelphia.) [Highly interesting facts. Ed.]

Thomas Meehan.

Bartram Botanic Garden, Philadelphia, Oct., 1850.

ON THE CAUSE OF GUM IN STONE-FRUIT TREES.

BY A SUBSCRIBER, BOSTON.

Gumming in Peach, and other stone-fruit bearing trees, has been the subject of various conjectures and experiments among horticulturists, but, as far as I can learn, very little has yet been made of it, and little light has been thrown on the subject in regard to the real cause of the malady, or a method of curing it. Most gardeners and horticulturists agree in calling it a disease—a very injurious one to the tree; and from its general character, we are very naturally led to draw this conclusion. From various investigations, however, which I have lately made on this subject, I am induced to form opinions regarding it somewhat different from those which I have seen recorded by others.

In Britain the exudation of gum is attributed to the coldness of the seasons, and the wet, unsuitable nature of the soil, and though trees grow under glass, are not exempted from it—yet it is found that they gum less frequently than trees on the walls, out of doors, where alone they are cultivated in that country; nevertheless, we know very well, that trees are often as badly gummed in peach houses, under circumstances apparently adverse to the above causes, as they are out of doors, both in this country and in England. Although I would not assert that a cold climate and a wet soil has nothing to do with it, yet my observations go far to satisfy me that there must be a predisposing cause, before the trees can either be affected by the cold or moisture.

I have lately examined a large quantity of peach trees, in the neighborhood of Baltimore, some on dry, gravelly ground, and others under glass, under conditions altogether precluding the possibility of the foregoing causes. In both cases the trees were much gummed, and always at the surface of the ground, or a few

inches below the surface. I have taken as much as one pound of gum from a single tree, and those trees which have the largest exudations, I generally find the most vigorous, and have made the largest growths. In fact, I have never seen trees, either in the cold climate of Britain, or in the northern New England States, exude gum so excessively as in the warm and temperate climate of Maryland, under conditions the reverse of those which KNIGHT, LOUDON, and other eminent horticulturists, attributed its production.

It has likewise been supposed, that the depositions of gum were made in the spring, from the ascending juices, a kind of spontaneous extravasation, resulting from a superabundance of ascending sap, which the leaves are unable to assimilate, or to throw off by perspiration; I am fully satisfied that such is not the case, for I have made incisions in trees for the purpose of extravasation, when the vital forces of the trees were most active, in the spring, but in every case the wound thus made became exsiccated after the bleeding had ceased; in no case has the sap thus exuded been transformed into gum. As the season advances, small portions of the gum are formed, and towards the end of summer and autumn, it accumulates in large quantities, and the accumulation is always greatest, if not wholly from the upper side of the incision, showing that it has been poured down from the leaves with the descending current, and taking the first opportunity of exuding itself, instead of finding egress as it would otherwise do at the points of the roots.

This gum, then, is no loss to the tree, and I am convinced the trees would be better if they threw off more gum than they generally do, for it affords neither materials for wood nor fruit, any more than other organic substances. Its chemical constitution is different from that of woody fibre, the latter containing a larger proportion of carbon, showing that the leaves have already appropriated as much carbon as the exercise of their functions enables them to fix, and convert along with the sap there accumulated, into woody fibre. This fixation of carbon, is analogous to the functions of digestion in animals. In the solid food of all animals, carbon is one of the principal ingredients; so is it the principal ingredient in the formation of every fibre, out of the crude sap drawn from the roots by the leaves. Of the whole amount of sap absorbed by the roots, a very small portion is appropriated to the tree, and when we consider, that in a short time, a tree will absorb by its roots three or four times its own weight of water, we will have some faint idea of the large quantity that it must get rid of by exhalation and other means, before the fluid can be concentrated to that degree in which it is converted to solid matter by the addition of carbon, under the influence of light.

Woody fibre contains about 50 per cent. of carbon. The gum is chiefly composed of hydrogen and oxygen, in the proportions which constitute water, and doubtless the small quantity of carbon contained in it, though insufficient for its conversion into wood, is nevertheless sufficient to preserve it in a gelatinous state. It is evident that this gum must undergo a great change before it could be converted into woody fibre, and, though I have minutely examined it in this respect, I have never seen the slightest appearance or approach to the cellular formation of organized tissue, whereas if the viscid substance termed *cambium* which is prepared by the leaves, to form the new layer of wood, be drawn off from the stem, it not only shows a tendency among its particles to arrange themselves in the form of cells and vessels, but frequently does so, forming by this kind of coagulation as perfect tissue as that formed in the interior of the stem, as may frequently be seen in nodules and hard concretions on the stems and branches of various

kinds of trees. These knots or excrescences are undoubtedly accumulations of cambium, which become transformed into wood, as in ordinary circumstances. Had it been imperfectly elaborated sap, it would have been thrown off by extravasation or other means, from the tree. These knotty excrescences possess all the powers and properties of perfect buds and branches, and in Italy they are frequently found upon the olive trees, are employed for the purposes of propagation, and it appears, when cut from the tree, with a portion of the bark adhering to them, they very readily grow into young olive trees.

Although the theory of DECANDOLLE, regarding the excretory power of plants, has been rejected by many eminent physiologists, there are, nevertheless, some strong facts springing out of this inquiry, that lead to the belief that this power is possessed by them in a very extraordinary degree. I would not assert that plants do not possess the power of discrimination, to a certain extent, although we know that plants absorb solutions which speedily cause their death, and which the roots appear to have no power of rejecting, from which many physiologists conclude that plants possess no definite power of selection. Their absorptive power may, however, be antagonized by their excretory power, for it is well known that they have the power of selecting from their juices as it passes through their vascular system, such portions as are likely to nourish them, and of rejecting from their roots and otherwise, *when the sap descends*, such portions as are unfit to contribute to their support, or would be injurious to them if not rejected from their system.

My investigations, therefore, drive me irresistibly to the conclusion, that the accumulations of gum on Peach and other stone-fruit trees, is superfluous matter, rejected by the tree, and which is necessary to its welfare to do so, and instead of being injurious, is beneficial. It is never found except where there is a puncture or laceration of the bark, hence it takes the first medium of egress; when such channels of outlet do not exist, it is no doubt ejected by the roots.

If I am correct in my premises, gumming is no injury to the tree, but the contusions from which it flows may be by the ingress of air, and harboring the larvæ of insects. When the gum, therefore, is scraped off, the wound should be plastered over with some plastic substance. I am making further investigations on this subject, and will give you a further account of them when they are completed.

Respectfully yours. A SUBSCRIBER.

Boston, Oct., 1850.

A NOTE ON THE DIANA GRAPE.

BY N. LONGWORTH, CINCINNATI, OHIO.

MR. DOWNING—Hearing the Diana grape much lauded at the East, I obtained grafts last spring, and have them growing. Being a seedling from the Catawba, I wanted faith in the reports of its superiorty to the parent; for all our seedlings of the Catawba have fallen back nearer to its old grandfather, the common Fox grape. Among our seedlings, we have two white ones. I obtained by Express yesterday, from Boston, some bunches of the Diana grape, and sent for our fruit committee, and some of our best horticulturists. I laid before them the Diana grape, and a bunch of the Catawba, not fully ripened, and selected on that account. I requested the gentlemen to taste the two parcels, and decide if both were the same grape—if not, which was the better grape. I kept them unadvised of the name and

origin of the Diana. Twenty persons were in attendance at the same time, and double that number during the day. Each individual decided the Diana as bearing no comparison with the Catawba. Skin thicker, pulp harder, and more acid, and more of the flavour and aroma of the Fox. To give the horticulturists of Boston, a chance of testing the question, I yesterday sent by Express, a ripe bunch of our Catawba, and one not fully ripe, with a few other bunches of our native grapes.

One of the persons present had formed so favourable an opinion of the Diana grape, from report, that he had offered $15 for a root. I deem it important that the quality of any new fruit, should be made known as speedily as possible, to save to our fruit-growers time and expense. I am clearly of opinion, that none of our fine native grapes will succeed in New England. I had two varieties of the native grapes sent me from Connecticut—the one, called the Olmstead; it is one of the commonest of the Fox family; the other, the Charter Oak, all Fox of monstrous size, but its only value would be for *cannon balls*, should the South carry disunion so far as to lead to bloodshed. I have a graft growing, and shall plant some of the seed, expecting such an event. I am desirous of seeing seedlings raised from our best native grapes, that are not derived from the Fox. I would particularly recommend the Herbemont for this purpose. It is very hardy; more vigorous in its growth than any other vine. I shall, next season, endeavor to grow a shoot 50 feet long. The bunch is larger than Miller's Burgundy—the grape larger, and much finer, as a table grape. I deem the wine superior to the Spanish Mansienella; it has the same aroma and flavor. Yours, with regard.

N. LONGWORTH.

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REMARKS.—We beg to add to "all our fruit-growers," who might think Mr. LONGWORTH's impressions regarding the Diana grape a "settler," that there is one or two important points to be taken into consideration.

In the first place we never tasted a *ripe* Catawba or Isabella in New England. We do not mean to say that in very favorable circumstances they may not ripen there, but that generally speaking they never attain there what would be called maturity in the middle States. In the next place it is well known that though the Diana originated years ago near Boston, it attracted no attention there until the variety was planted and began to mature fruit on the banks of the Hudson. Consequently to take the fruit of either the Diana or the Catawba from Boston, where the peach rarely ripens well, to Cincinnati—a wine-making country, with a month more summer—is like comparing fruit when it begins to change color, with the same sort when at its most perfect maturity. Specimens of the Diana from Boston were tasted by us at the Congress of Fruit-growers last autumn, in New-York, and fell as far short of the flavor of those ripened on the Hudson, as those sent to Cincinnati did below the flavor of the Ohio Catawba,—because they wanted two weeks more sun to ripen them. When the Diana ripens in Ohio, then, and then only, will our friends at Cincinnati be able to judge fairly of it. We have had the best possible opportunity of judging of the comparative merits of those two native grapes, in the garden of our neighbor, Mr. SARGENT, where there are 6-year old vines (Catawba and Diana) growing on a trellis, side by side. We therefore repeat, what we have before said, that the Diana is a seedling of the Catawba, resembling the Catawba in many respects—but earlier, handsomer, and of superior quality for the table. It is *not* a Black Hamburgh nor a Rose Chasselas, and is not worth "$15 a root," but it is an improvement on the Catawba, and, in a grape climate like the middle States, a decided acquisition. ED.

REVIEW.

RURAL HOURS: By A LADY. (One vol., 12mo., 521 pages; published by GEO. P. PUTNAM, New-York.)

THE present generation of young readers is almost buried under the avalanche of modern fiction, which our publishers, roaming about for exciting tales and novels, like buccaneers among the high seas, have captured and let loose upon the country. EUGENE SUE and DUMAS have shaken even the far west more than the fever and ague; and it is doubtful if THACKERAY and JAMES, taken in such large doses as they have been for some time past, have not produced a species of jaundice and dyspepsia.

Society and nature were both intended for the education of man. If he will only have lessons from the first, he is sure to grow heart sick sooner or later, and, like SOLOMON, cry out "all is vanity." If he lives wholly upon nature, he will become an anchorite or a dreamer; or, what is worse, his eyes may gradually close up (like those of the sightless fish in the Mammoth Cave,) to the great relations and duties of man as a social being.

Novels and tales—especially those of a healthier cast than the bulk of those alluded to—have their uses—very valuable ones, too—of teaching men human nature, and the workings of many problems of society; and we are not among those who think only true stories—meaning thereby histories, often full of falsities—should be put into the circulating libraries. HANS ANDERSON'S story books, and Miss BREMER'S novels, have more healthful truth in them than is contained in many of the most veracious volumes ever written; and we have been forced to swallow a good deal of French sauce lately, as a (needless) accompaniment to the wholesome viands that have come across the water to us by the same vessels.

The misfortune for us has been, that almost all the literature of the day puts us in contact with man, while little or none of it brings us in relation with nature. It is a continual drinking of stimulating beverages, which undoubtedly enlarges our conceptions, and vivifies our understanding, but leaves us forever excited, and forever asking for more. The true balance can only be restored by something that takes us by the hand and leads us back occasionally to nature. It is only from her, and the good teachings that should go with her, that we shall regain that serenity and peace of mind, which we have lost in the constant movement of the complex wheelwork of the social machine. Hence, the natural desire of citizens for the country, of the poet for the solitude of mountains, and the man of science for the hidden secrets of earth, air and sea.

We welcome Miss COOPER'S "Rural Hours," therefore, as we would welcome a clear spring of sweet water, gushing out of a cool mossy bank, after a dusty day's travel. What deep and pure draughts of simple rustic enjoyments one drinks from its pages. What a healthy spirit, like a soft but fresh breeze, breathes through its characters. What a feeling of serenity and peace of mind, like the calm of an October day, pervades it. Here is the exact counterpoise which so many of our young people need for their overexerted imaginations. Here is a natural spring of sweet water, which, if they will only live in the country and drink daily, is sure to react

upon their jaded spirits—jaded with the one-sided culture of society or society novels.

"What," exclaims some of our readers, "do you find all this in a book that is only a diary of ordinary country life? A book that gives an account of a walk in the woods, of maple trees, squirrels, crickets and swallows? A book without a story—which begins with a snowstorm, and ends with a sunset?"

Yes, you are quite right. There is no story, but the story of the earth—the oldest of all story books—and no incidents but the incidents of nature—God's incidents. But do you think such incidents too trifling and commonplace for your attention? Do you think it pleasant or wise to live three score years in a world so full of curious and wonderful facts, that great and learned men have spent ages in diving but a little way into them, and never recognise their existence? Is it of no consequence that you do not know, even by name, the trees and flowers, the birds and animated nature, the rocks and stones under your feet? Ah! believe us, there is a great heart in the bosom of nature, which you may hear beat if you will only confidinlgy and trustingly woo her daily in her secret haunts. Yes, you may fall in love with nature; and it is a passion that grows—not weakens—by enjoyment; a feeling that calms—not excites—the soul; a sentiment that always ennobles, and never degrades the heart.

We welcome Miss COOPER'S volume, also, because it proves to us that time and culture will develop in our fair countrywomen that fondness for nature, and that nice observation of it, which are among the rarest and best traits of national character; traits, we may add, which one only sees in the Anglo-Saxon and northern nations.

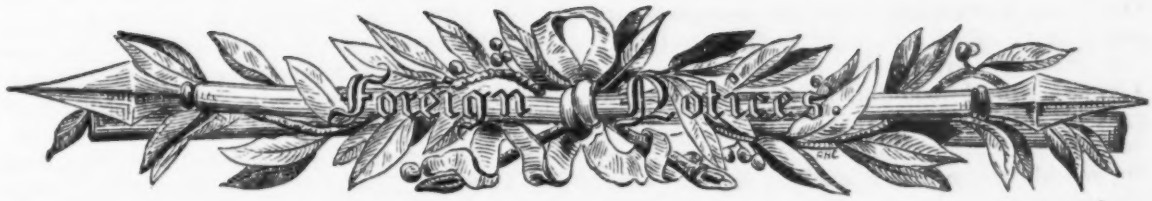
Women, in the country, must have some objects of interest beyond their ordinary household cares and joys. If they love country life, rural pleasures, nature, then comes a national character, based upon pure and wholesome tastes. If they care only for social enjoyments, and look upon occasional solitude as something absolutely stifling or barren, then arises a feverish appetite for cities, and the life of crowds. And who does not know that in all countries, it is the taste of the mother, the wife, the daughter, which educates and approves, and fixes, the tastes and habits of the people? It pleases us better then, we repeat, to see this first proof of an intelligent, genuine, feminine fondness for nature and rural life, than to see the advent of a great sculptor or painter. Heaven vouchsafes to every nation, sooner or later, a few great warriors and men of genius; but not to every one a national character, which takes root in the soil.

It is a little singular, that although almost all children love rural life and the wild woods, the instinct for these things so often vanishes in the mature mind, that it seems almost a cultivated taste when we find it strong in a person of ripe years. Business and pleasure vitiate the appetite for nature, but do not destroy it; and a little patient attention to her will win back her friendship. If, therefore, any of our readers find such a volume as the Rural Hours uninteresting, let them believe that the fault is in themselves, and not in the subject, or the method in which it is treated. It is not a volume to while away a journey, or to take into the rail-cars, but one for a solitary walk in the fields, or a rainy day by the fireside. As a pleasant companion, to open the eyes of the blind to the beauty and interest of simple country life, it is a real treasure. It is as full of instruction, too, as a volume of natural history, with the advantage of telling a novice no more than he can easily comprehend, and frightening him with no needless scientific names and technicalities. It is thoroughly national, and is perhaps the only

book yet written by which a foreigner could become really familiar with the physiognomy of American scenery, and the habits of our country life. Beginning with spring, it carries us through the seasons with all the interest and meaning of their changes, and all the features, and most of the events, of sylvan and pastoral life under their influence. And though there is no story, (perhaps one slightly interwoven might have helped the popularity,) there are bits of poetry, philosophy, and domestic economy so charmingly interspersed that one lays the work down with a feeling of absolute and intimate friendship for the author.

We had marked several passages, but find we have only room for one. It contains a few thoughts, suggested by a view seen from the top of a height, reached in a summer's drive, and may be taken as an average specimen of the simple earnestness of Miss COOPER'S style:

"From the most elevated point crossed by the road we looked over two different valleys, with their several groups of broad hills, and many a swelling knoll. Looking down from a commanding position upon a mountainous country, or looking upward at the same objects, leave very different impressions on the mind. From below we see a group of mountains as pictures in one aspect only, but looking abroad over their massive forms from an adjoining height, we comprehend them much more justly; we feel more readily how much they add to the grandeur of the earth we live on, how much they increase her extent, how greatly they vary her character, climates, and productions. Perhaps the noble calm of these mountain piles will be more impressive from below; but when we behold them from a higher point, blended with this majestic quiet, traces of past action and movement are observed, and what we now behold seems the repose of power and strength after a great conflict. The most lifeless and sterile mountain on earth, with the unbroken sleep of ages brooding over its solitudes, still bears on its silent head the emotion of a mighty passion. It is upon the brow of man that are stamped the lines worn by the care and sorrow of a lifetime; and we behold upon the ancient mountains, with a feeling of awe, the record of earth's stormy history. There are scars and furrows upon the giant Alps unsoftened by the beaming sunlight of five thousand summers, over which the heavens have wept in vain for ages, which are uneffaced by all the influences at the command of Time. This character of former action adds inconceivably to the grandeur of the mountains connecting them as it does with the mystery of the past; upon a plain we are more apt to see the present only; the mental vision seems confined to the level uniformity about it; we need some ancient work of man, some dim old history, to lead the mind backward; and this is one reason why a monument always strikes us more forcibly upon a plain, or on level ground; in such a position it fills the mind more with itself and its own associations. But without a history, without a monument, there is that upon the face of the mountains which, from the earliest ages, has led man to hail them as the 'everlasting hills.'"



MEDICINAL EFFECTS OF HARD WATER.—Water, every one knows, is a necessary of life, and the knowledge is as general that hard water is very disagreeable when employed for washing, but not one of our readers, probably, ever minutely examined the consequences of using this hard water for drinking, cooking, and other household purposes. It is one of those occurrences of every day life which we meet with, deprecate, and submit to: we grumble, but are not sufficiently aroused to make an effort to remove the evil. We would earnestly endeavor to dispel this apathy, for the consequences are largely, very largely, injurious to the health and the purses of those who thus submit; and we do so the more confidently, because our attention has been recalled to the subject by a most interesting *Report by the General Board of Health on the Supply of Water to the Metropolis*. A report drawn up chiefly by Mr. Chadwick, and which is only equally creditable with other similar documents, indicative of his ability and judgment.

Now, with regard to the influence of hard water upon the health, it appears from the universal testimony of medical men from Hippocrates down to the day on which we are writing, that it has a tendency to constipate the bowels of the drinker. "Hard water," says Dr. Todd Thompson, "under whatever name found, should be excluded." Dr. Sutherland says:—

"Having lived for a number of years in Liverpool, a town which has a supply of very hard water for domestic use, my attention has for a length of time been called to the fact, that the continued use of this water has a somewhat peculiar effect on the digestive functions in certain susceptible constitutions. There are so many local causes of disease in the town, which may be left behind by going to other more favorable localities, that it is not very easy to state positively how much injury may be done by the quality of the water alone, but after some experience and observation, both in myself and others, I arrived at conclusions which I frequently expressed several years ago, and which nothing has since occurred to alter, and these are, that in the class of constitutions referred to, the hard water tends to produce visceral obstructions; that it diminishes the natural secretions, produces a constipated or irregular state of the bowels, and consequently deranges the health. I have repeatedly known these complaints to vanish on leaving the town, and to reappear immediately on returning to it, and it was such repeated occurrences which fixed my attention on the hard selenitic water of the new red sandstone as the probable cause, as I believe it to be, of these affections."

In these opinions he is sustained by the testimony of Drs. Heberden, Paton of Paisley, Leech and Cunningham of Glasgow, Wolstenholme of Bolton, and many others.

Dr. Playfair enforces his conviction that hard water is injurious to human beings, by referring to its effect upon animals. He observes that—

"Horses have an instinctive love for soft water, and refuse hard water if they can possibly get the former. Hard water produces a rough and staring coat on horses, and renders them liable to gripes. Pigeons also refuse hard water if they obtain access to soft. Cleghorn states, that hard water in Minorca causes diseases in the system of certain animals, especially of sheep. So much are race-horses influenced by the quality of the water, that it is not unfrequent to carry a supply of soft water to the locality in which the race is to take place, lest, there being only hard water, the horses should lose condition. Mr. Youatt, in his book called 'The Horse,' remarking upon the desirableness of soft water for the horse, says, 'Instinct or experience has made the horse himself conscious of this, for he will never drink hard water if he has access to soft; he will leave the most transparent water of the well for a river, although the water may be turbid, and even for the muddiest pool.' And again, in another place, he says, 'Hard water drawn fresh from the well will assuredly make the coat of a horse unaccustomed to it stare, and will not unfrequently gripe or further injure him.'"

To sum up the whole, there is no doubt with medical men that health is promoted by employing —and that for invalids one great aid to recovery is by the use of—"the softest, lightest, and purest of water." Every one has heard of the sick and the weakly resorting to Malvern to drink its renovating waters, and our readers will be startled, and feel more forcibly what has been said, when we add, from the report before us, that "at Malvern the spring water in the highest reputation for medicinal quality, is *a water only remarkable for its purity.*" *Cottage Gardener.*

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REFORM IN NOMENCLATURE.—If a man talks of VIRGILIUS, or HORATIUS, or JUVENALIS, he is set down in Scotland as a Dominie, and in England as an ass. Yet the naturalist who dares to speak

of Clianth and Oncid, instead of Clianthus and Oncidium, is regarded as a troublesome innovator; and if he ventures somewhat further, and prefers Birthwort to Aristolochia, Tangle to Fucus, or Liverwort to Marchantia, he may expect to take rank as a scientific Chartist. Nevertheless, the very persons who condemn such modes of speaking would be the first to exclaim against calling *Viburnum opulus* by any other name than Gueldres Rose, or *Galanthus nivalis* otherwise than Snowdrop.

How is it that the practice of pedantry among scholars is admitted on all hands to be an offence against good taste, and that the absence of it among naturalists is also looked upon as an offence against good taste? Why do men thus blow hot and cold with the same breath? How is it that scholars who understand Greek and Latin, drop those languages in English composition, and that naturalists require persons who know nothing of such tongues to be always making grotesque efforts at talking them? This seems to deserve some examination on the part of those who think that natural history should be made interesting to all classes, and identified with their familiar thoughts, a result that will never be arrived at so long as the nomenclature of organized bodies is a chaos of Greek and Latin compounds, whether barbarous or formed upon the soundest principles.

It may be alleged that the practice of adapting classical names to the English tongue is not universal; and that, if we have pruned VIRGILIUS and OVIDIUS down to VIRGIL and OVID, we have left CORNELIUS NEPOS and QUINTUS CURTIUS in their ancient shape. Why this has happened we know not. Possibly because these names are much less used in conversation than the others, for CORNEL sounds as well as VIRGIL, and would arise out of an application of the same process of curtailment; nor do we see why QUINTIN CURT should be excluded from the language which recognises QUINTIN DICK. At any rate, among the best authorities, the practice has gone much further than is suspected; in proof of which we have only to refer to the words Cynosure, Zephyr, Ethiop, Arcady, employed by MILTON and others, or to such names as CEPHISE, HIPPOLYT, ÆSCULAPE, DIAN, CAMILL, and HYACINCT, which are familiar to all readers of SPENCER.

Our good old Saxon tongue consists mainly of words of one or two sylables; and it will always be found that the purest and best English writers shunned long words taken from Greek and Latin. The sonorous but corrupt style of some of our great authors introduced, indeed, a great change in this respect. With them language was—

> "English cut on Greek and Latin,
> Like fustian heretofore on satin."

But scholars happily saw the evil of this, and hence the sesquipedalian style has made no progress. Had it been otherwise, we should by this time, like the Germans, have excited the astonishment of the world by words extending across a page. Does any one imagine that our forefathers would have kept even Quercus in their vocabulary, if they had not possessed its equivalent in Ac or Oak; undoubtedly they would have cut it down to Querk in spite of the lawyers. And, in like manner, Fagus would have become Fage, or Fege, or Phege; but they seem to have found a substitute in Beech.

The universal practice of society is to expel technical words from familiar language, wherever it is possible to do so. A naturalist would be laughed at who talked of a *Rana temporaria*, meaning a frog, or of *Curruca Luscinia*, meaning nightingale, or of *Falco fulvus*, or *Aquila chrysaetos*, meaning a golden eagle. Would anything be more preposterous than to call KEENS' Seedling Strawberry, *Fragaria virginiana*, or Sweet Vernal Grass and Cocksfoot, *Anthoxanthum odoratum* and *Dactylis glomerata?* It is only necessary to allude to such cases to show their extreme absurdity.

The truth is, that all nations like to speak their own language, if they can, and to fashion foreign words to the shape of their own organs of speech as nearly as they find possible; and hence we English have changed TAILLEBOIS into TALBOT, cinqfeuille into cinqfoil, and so on. And we cannot but think that those who have kept this in view in modifying the foreign names current in natural history, have acted upon a principle, the soundness of which cannot be well disputed. It does not, however, follow that the principle has been judiciously applied. On the contrary, it must be conceded that an error has been committed—that error is translation instead of adaptation. A better course would have been adaptation to the exclusion of translation. The best course is the skilful mixture of the two.

The objection to translated names consists in this—that the naturalist who uses them has to burthen his memory with two names instead of one—the vernacular and the technical. And this we take to be the true and only valid objection to translated names, provided the translation is made on correct principles. It must we think be admitted that Toothtongue is more conformable to the English language than *Odontoglossum*, and Cutridge than *Acrotemnus*. Nor is there anything in such names at variance with the usual construction of English compounds. Objections to them on such a ground are only prejudices. The great fault in Toothtongue and Cutridge is—not that they are badly constructed words but—that they compel the naturalist to recollect them, in addition to *Odontoglossum* and *Acrotemnus*, which are indispensable. Science requires a universal nomenclature, suitable to all countries, and that must be preserved, in addition to any local nomenclature.

We freely admit the force of this objection, and for this reason, but for no other, willingly advise

the abandonment of further attempts at translated words—unless in cases where the English equivalent is in general use, as in Birthwort for *Aristolochia*, or Daisy for *Bellis*, or where the technical word is not susceptible of adaptation. We would therefore rest content with Dendrobe for *Dendrobium*, Camarote for *Camarotis*, and Acroteme for *Acrotemnus*. But there is an abundance of cases in which adaptation is impracticable. We may legitimately curtail *Odontoglossum* into Odontoglot and *Ionopsidium* into Ionopsid; but what is to be done with names like *Hypoelytrum*, *Holmskioldia*, *Lusuriaga* or *Ornithocephalus?* No art can Anglicise them. They must be translated, or changed, or left in their original deformity. This question however need not be raised just now, because they are either of rare occurrence or confined to technical science.

We own that this question appears to be one of much public interest; and we shall gladly publish any adverse views with which our correspondents may favor us. We shall scarcely be suspected of writing to embarrass science. Our real purpose is to make it easy and popular; and we firmly believe that if natural history is not to be locked up in the cabinets of *virtuosi* its language must be made as familiar as household words. In saying this we believe that we express the opinion of a vast majority of all classes of society; an opinion in which we are the more confirmed from seeing that a large number of adopted words have already established themfelves securely in common language within these few years. *Dr. Lindley.*

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The Chrysanthemum.—In the following remarks respecting Chrysanthemums, I shall chiefly confine myself to the mode of cultivating them in pots. As soon as the plants have done flowering, I cut them down, and place them in any convenient corner on the south side of a wall, where they are in some measure sheltered from the frost and north-easterly winds. They remain in this situation undisturbed, except by watering them now and then, until the end of March, when they are removed to a more open place, preparatory to their being wanted for the purpose of propagation. Chrysanthemums many be increased by cuttings, layers, and offsets; I have often grown them from the latter; but I have found the foliage so apt to go off them, and leave the plants naked at the bottom, that I greatly prefer cuttings, which, with good treatment, will retain their foliage green and healthy almost to the rims of the pots. The best time for putting in cuttings is the latter end of April, or the beginning of May. I use the points of the best shoots of the current year's wood, not more than two or three inches in length, cutting them close to a joint, and removing the bottom leaves. When potted, I transfer them to a close frame; and if it is convenient, I assist their striking by means of a gentle bottom-heat, but this is not absolutely necessary, for they strike readily without it. I shade for a few hours in the daytime, until they have taken root, when I give them plenty of air, and pinch out their tops, which causes them to break freely. When the shoots have grown an inch or two in length, I pot into large sixties, in a mixture of turfy loam and one-third rotten dung, selecting the strongest and bushiest plants, and discarding the rest. When potted, I again place them in a close frame, and shade a little until they have made fresh roots. They are afterwards set out of doors, sufficiently far apart to prevent their being drawn, and kept well supplied with water. When the shoots have grown three or four inches in length, I again pinch out their tops, in order to make them bushy; and after they have grown an inch in length, I shift the plants into 6-inch pots, placing them again in their former situation; and when they have filled the pots well with roots, I re-pot them into 9-inch pots, in which I flower them, using the same compost as before. I now place them thinly in a nice open place, where they have a free circulation of air: this keeps them dwarf and healthy. I keep the pots clear of weeds and suckers; water them as often as they require it; and when they have fairly set their flower-buds, I give them some good clear manure-water twice a week, or more or less according to the state of the weather. About the beginning of October, I remove some of the most forward plants under glass, giving them plenty of air during the day. The others are taken in as they are required, or as the weather may render necessary; for though hardy the Chrysanthemum will not stand more than 4° or 5° of frost, without sustaining some injury. I bloom here every year about 150 plants, varying from one to two feet high, and having from twenty-five to thirty full-blown flowers on each plant, many of which do not require a single stake to support them.

It may be worth while to remark that, if some of the most promising shoots of out-door plants are layered in the beginning of September. by giving them a twist, and pegging them down a few inches below the surface of the ground, so as to make young plants about ten inches high, they will be well rooted in three weeks, *i. e.* if they are kept watered. When rooted, they may be taken up and potted in 6-inch pots, and placed in a close frame for a few days, while they make fresh roots; afterwards they should have plenty of air. Plants managed in this way are very suitable for the front shelves of the stage, or for mixing with other plants.

The earliest and best flowering of the plants I take cuttings from, are selected and planted in anyvacant places in the shrubberies, all the shoots being first shortened back to within six inches of the pot. This causes them to make more shoots, which are again stopped, thus keeping the plants dwarf and in due bounds, and inducing them to bloom at a season when few flowers adorn the garden. *Beck's Florist.*

HARDY HERBACEOUS PLANTS.—The system of filling a whole bed with plants of one sort, which is now so much practiced, has had the effect of withdrawing attention, in a great measure, from this very interesting class of flowers; and yet upon these the beauty of our flower gardens mainly depended only a few years ago. Some of the kinds which bloom first in spring have already been noticed, and we shall now mention a few other desirable species, with the view of recalling them to recollection. It may be premised that the plants in the following list are unsuitable for planting in masses; their proper place is in those beds of mixed flowers which are still occasionally seen, bordering the principal walks, or placed here and there in conspicuous situations, in some pleasure grounds. One advantage attached to this class of plants is, the small amount of skill or of labor required in their cultivation. Once planted in suitable soil, that is, common garden ground, moderately enriched with manure, many of them will grow and bloom for years, with little care beyond the thinning and tying of the stems, and an occasional reduction of size when the root stock has become overgrown. But there are some species which demand a little more attention in return for the gratification they give us, and one of these is Lychnis fulgens, the roots of which frequently perish when exposed to wet and cold during winter; it is therefore necessary to raise young plants from seed every spring, when this species is treated as an ordinary herbaceous plant; but its splendid scarlet colour entitles it to be cultivated in pots, in the same way as the better known L. coronata. In height it seldom exceeds 1½ or 2 feet, and as it does not produce numerous flower stems, a better effect would be obtained by setting three or four plants in a patch. The double flowered variety of the common scarlet Lychnis (L. chalcedonica) is now seldom seen, although very handsome; so likewise is the double clammy Lychnis (L. viscaria,) and the double Cuckoo-flower (L. Flosculi.) The genus Delphinium (Larkspur) contains many showy species, among which azureum (light blue,) mesoleucum (dark blue, with white centre,) and elatum (dark blue,) are suitable for the middle of large clumps or the back part of borders, as they all grow 5 to 6 feet high. Of the shorter species, grandiflorum is one of the handsomest, and when propagated from seed several varieties may be obtained, varying in colour between dark blue and white; and occasionally a plant having double blossoms will appear among the seedlings. The beautiful double kind commonly known as grandiflorum appears to belong to a different species. Another taller growing double sort is called Barlowii, and this also is very handsome. All these are usually in bloom about mid-summer. Several of the herbaceous Ranunculuses have varieties with double flowers, which are very desirable things. One with bright yellow button-like blossoms is probably a variety of Ranunculus acris; this grows about 2 feet high, and is in the height of its beauty in June. Another having very pretty white flowers is rather dwarfer in habit; this by some botanists is referred to R. aconitifolius. Allied to these is Caltha palustris, a marsh plant with large yellow flowers, of which a double variety, very suitable for moist places, is sometimes seen in gardens. The common Columbine is well known, and some of its varieties are equal in beauty to many flowers of far greater pretensions; but all are eclipsed by the handsome blue and white Aquilegia glandulosa, a species which ought to be in every flower garden. As a spurious sort is sometimes substituted, it may be as well to intimate that the true kind has been advertised in the *Gardeners' Chronicle*. In the genus Campanula there are so many fine things that it is difficult to make a selection. Among the most desirable, however, will be found Persicifolia, of which there are double and single varieties, both with white and with blue flowers; the double white Throatwort (C. trachilium,) and the double white glomerata, all of which grow from 2 to 3 feet high. Taller kinds are grandis (blue,) lactiflora (milky white,) and pyramidalis (both white and blue varieties;) and of very dwarf sorts there are pulla (dark blue,) pumila (both blue and white,) garganica (blue,) and fragilis (blue.) A biennial species called the Canterbury Bell (C. medium) is also very ornamental. Seeds of this sown about Midsummer will furnish flowering plants for the following season, and amongst them there will probably be different shades of blue as well as white flowers. C. nobilis will be grown as a novelty rather than for effect, its large pendulous purplish flowers being too dull to be showy. Wahlenbergin (formerly Campanula) grandiflora is a beautiful thing, but very scarce; and Symphiandra pendula, another campanulaceous plant, with white blossoms and a dwarf, drooping habit, deserves cultivation. Pentstemons are all pretty, but unfortunately the best of them are the most tender. Scouleri, venustus, glandulosus, ovatus, and speciosus, have handsome blue flowers, especially the latter, which however, is so delicate, that, to have it in perfection, seedling plants should be grown in pots through the winter, and turned out in spring; treated thus, it makes a splendid bed. Campanulatus and atropurpureus differ chiefly in the colour of their dull purple flowers, the latter being the darkest. Digitalis is more robust, growing upwards of 3 feet high in good soil, and has white flowers. Hesperis matronalis (the Rocket) has two double varieties, one with white, and the other with purple flowers, which ought to be cultivated extensively, especially the white one. Being short-lived plants, a young stock must be kept up by putting in cuttings about mid-summer, after the bloom is over. Hedysarum coronarium (the French Honeysuckle) is one of the most showy of Papilionace-

ous plants, its deep-red flowers being produced in profusion in June and July. It is a biennial; therefore seed must be sown every year. Catananche cærulea and C. bicolor, the first blue, and the second blue and white, are showy things, their scaly flowers bearing some resemblance to those of the Everlastings. These should be raised from seeds every spring, and treated as biennials. The common Everlasting Pea (Lathyrus latifolius,) as well as its white variety, are very ornamental towards the end of summer, when carelessly trained upon a few rough sticks; so likewise is L. grandiflorus. Ononis rotundifolia is an exceedingly pretty thing, with its pale rose-coloured flowers and low bushy habit; and yet it is seldom seen, probably because it is short-lived, and therefore requires to be frequently renewed from seed. Liatris spicata, scariosa, and elegans produce their spikes of bluish flowers towards the end of summer and beginning of autumn, and are singular as well as pretty, Dictamnus fraxinella is a good old plant now neglected, perhaps because its flowers are not gaudy; and yet there is sufficient character about the plant to make it very interesting. This species is red; and there is another with white flowers, which appears to differ from it in little but colour. Of the perennial Lupins, polyphylius is undoubtedly the handsomest, including, however, its white variety. Grandifolius has flowers of a singular dark dull blue, and ornatus is pale blue. By preventing the growth of seed-pods, the flowering season of these plants may be much prolonged. The Aster, in some form or other, is seen in most gardens, especially the tall late-flowering kinds commonly called Michaelmas Daisies; there are, however, several species of lower growth, which ought never to be excluded from herbaceous beds; and of these amellus, spectabilis, sibiricus, and alpinus, have large showy blue flowers; while the smaller blossoms of hyssopifolius and elegans are produced in such profusion that they equal the best in effect. Numberless others, equally fine, might be added to the above list, if space permitted; these. however, will serve to form the nucleus of a good selection. *J. B. Whiting, in Beck's Florist and Garden Miscellany.*

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Effects of Lightning on Trees.—At a recent meeting of the Botanical Society of Edinburgh, Mr. M'Nab, of the Royal Botanic Garden, made a communication on the effects of lightning on trees. He remarked:—"A few days ago I accidentally heard of a tree which had been struck by lightning on the 5th inst (June, 1850,) at Pitferrane, Fifeshire, the residence of Andrew Buchanan, Esq.; and, being anxious to ascertain the species, I wrote for a small branch, with any history which could be given regarding it. I have just received the leaves shown, which prove it to be the *Ulmus montana*, or Wych Elm. My object in bringing the notice before the society, is to ascertain from its members any varieties of trees known to the[illegible] having been struck by the electric fluid. Abo[illegible]this time last year a very large oak on the gro[illegible]s of John Wauchope, Esq., of Edmonston, was s[illegible]ttered to pieces; and a few years previously a laburnum standing close to the oak was likewise destroyed. While on a tour over a portion of the American continent, some years ago, I had several opportunities of observing gigantic trees torn to pieces by electric influence. In every instance I observed they were oaks. During a thunder storm I found the workmen (chiefly in Canada,) resorting to the beech trees for protection, from an idea that they were not liable to be struck by lightning; certain it is, that I saw none, notwithstanding the prevalence of large sized beeches in many districts. The elm above alluded to at Pitferrane, had an iron fence standing close to it, which was supposed by the inhabitants to have had some influence in attracting the fluid. The above observations are thrown out, in the hope of ascertaining if there be anything in the composition of one species of tree rendering it less liable than another to electric influence." Several other members present at the meeting mentioned that the beech, the horse chestnut, and the ash, had all been struck by lightning *Cottage Gardener.*

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Primœval Vegetation.—The olive-leaf which the dove brought to Noah established at least three important facts, and indicated a few more. It showed most conclusively that there was dry land, that there were olive trees, and that the climate of the surrounding regions whatever change it might have undergone, was still favorable to the development of vegetable life; and, farther, it might be very safely inferred from it that, if olive trees had survived, other trees and plants must have survived also; and that the dark muddy prominences round which the ebbing currents were fast sweeping to lower levels, would soon present, as in antidiluvian times, their coverings of cheerful green. The olive leaf spoke not of merely a partial, but of a general vegetation. Now the coniferous lignite of the lower old red sandstone we find charged, like the olive leaf, with a various and singularly interesting evidence. It is something to know that, in the times of the Coccosteus and Asterolepis, there existed dry land, and that that land wore, as at after periods, its soft, gay mantle of green. It is something also to know, that the verdant tint was not owing to a profuse development of the mere immaturities of the vegetable kingdom—crisp, slow-growing lichens, or watery spare-propagated fungi that shoot up to their full size in a night—nor even to an abundance of the more highly organized families of the liver-worts, and the mosses. These may have abounded then, as now; though we have not a shadow of evidence that they did. But while we have no proof whatever of their existence, we have conclusive proof that there existed

orders and families of a rank far above them. On the dry land of the lower old red sandstone, on which, according to the theory of Adolphe Brongniart, nothing higher than a lichen or a moss could have been expected, the ship-carpenter might have hopefully taken axe in hand, to explore the woods for some such stately pine as the one described by Milton:—

"Hewn on Norwegian hills, to be the mast
Of some great admiral."

—*Miller's Foot-prints of the Creator.*

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Different Berries in the Same Bunch of Grapes.—In the autumn of 1846, I found, near Mersberg, bunches of grapes bearing, at the same time, on one side, white Burgundy, and on the other red Rülander, or even red Rülander and black Burgundy; the berries, therefore, were different in colour, size and flavor. The cause of this phenomenon was, that the three kinds of grape in question were planted side by side in continuous rows, so that the pollen might easily be carried from the flowers of one to the stigmas of the others. Among other circumstances which warrant this explanation is the fact, that sometimes half, sometimes a third, or even a quarter, of the berries of a bunch belonged to the different sorts, and that these occurred on that side of it next the plant of that kind.—*M. Jack, in The Flora.* [The same thing we have seen at Stradsett Park, Norfolk. A seedling vine raised there produces both black and white grapes on the same bunch; but they are worthless. It is, therefore, very doubtful whether the transmission of pollen had anything to do with the change of colour. *Gard. Magazine of Botany.*]

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Chinese Rice-paper, or Bok-shung.—The substance commonly called Rice-paper by the Chinese, is made from the pith of a plant or tree, which grows principally in the swampy grounds in the province of Samswi, in the northern part of the island of Formosa, where it is said to form large forests. The bark and rind are, previous to exportation, stripped from the pith, which is then called *Bok-shung*. The iron knife used for cutting this pith weighs about two and a half pounds, and is of the roughest and coarsest workmanship. In cutting, the knife is kept quite steady, the cylindrical pith being moved round and round against the edge of the knife, which is just inserted into the substance, and thus a leaf or sheet is formed resembling the most delicate paper, but rather thick in substance. When brought quickly from the workman's hands, the paper is in a damp state. It may have been rendered so in order to facilitate the smoothing and pressing. It is said that there is a neat method of joining this paper when broken, and that it is chiefly made from the smaller pieces of the *Bok-shung*, and that the larger pieces are used in medicine in the same way as Epsom salts. It is vain to conjecture, from the pith alone, to what plant or tree this exquisitely beautiful substance belongs. The vulgar opinion still generally prevails, that because it bears the name of rice-paper, it is manufactured from rice; but the slightest inspection with a microscope exhibits the exquisitely delicate medullary portion of a dicotyledonous stem. Again, from an affinity with the well-known *Shola* of the East Indies, (of which floats and buoys for fishermen, and the very light hats of Sincapore are made,) many have supposed, and even Chinese travellers have declared, that Rice-paper is made from this, the Æschynomene paludosa; but a comparison of the two will clearly show the difference. Both are light and spongy, but the *Shola* is far less delicate than the *Bok-shung*. A Chinese drawing of what is said to be *the Rice-paper plant* is in possession of Dr. Lindley, but neither flower nor fruit is represented. Some have conjectured this to be a malvaceous plant, others araliaceous. We have seen in the branches of the common fig (Ficus carica) a copious medulla, very much resembling, in its texture and pure whiteness, that of the *Bok-shung*. *Hooker's Journal of Botany.*

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Gromier du Cantal Grape.—At the present day, the vine is distributed very extensively over the globe, in countries where the mean summer temperature reaches 67 degrees Fahrenheit. The limit to which the culture of the vine extends in France, forms an oblique line, which, beginning at the coast above Nantes, passes a little beyond Paris, Laissons, and the confluent of the Moselle and the Rhine. Beyond this line the vine does not ripen its fruit in the open ground, and can only be grown in a vinery, or, in favored situations, on espaliers, a method of growing it which is only applicable to some varieties, such as furnish what are called dessert grapes, (*Raisins de table.*) Among the varieties raised from the vine since its introduction to Europe, and the number of which, according to M. Odart, may be upwards of a thousand, nearly sixty produce very good dessert grapes. The *Gromier du Cantal* is one of the best quality in this class. Unfortunately, when the northern limits of the vine are approached, its culture presents considerable difficulty. Even at Paris it is not readily propagated, or transplanted, and must be treated with much skill and care. Notwithstanding this fact, the *Gromier du Cantal* may be almost considered as an exception; for, round Paris, it is found to ripen its fruit, even in the most exposed situation. The bunches are irregular, and measure from ten to twelve inches in breadth, weighing about three pounds. The berry is large, round, and of a rose colour; the skin is thickish and the flesh firm, and very agreeably flavored. *Revue Horticole.*

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Deodar Cedar.—The Deodar Cedar (C. Deodara,) is found on the Himalayas at an elevation

of from 7,000 to 12,000 feet; and, as it is now becoming well known in this country, it is almost superfluous to remark that it is, perhaps, the most ornamental coniferous tree ever introduced, and that, from its great beauty, rapid growth, perfect hardiness, and valuable timber, it is exceedingly well suited for being extensively planted in woods, parks, and pleasure grounds. Dr. Falconer gives the dimensions of a fallen Deodar which he saw on the Himalayas, as thirty-six feet in circumference at the base, and one hundred and thirty feet in length. The same authority states that timber of the Deodar, taken from a temple supposed to have existed at least 1000 years, was, to all appearance, as sound as when first placed there, not affording a dwelling to even a solitary insect. Burnes, in his *Travels in the Mysore*, states that, "the frameworks of the houses are made of Deodar Cedar, which is floated down with the inundations of the river Schem, or Hydaspes, from the Himalaya. The durability and fragrance of the wood," he adds, "recommend it for buildings of every description." He further observes that he saw a "cedar tree lying on the banks of the Hydaspes, with a diameter of thirteen feet. On this river," he continues, "the Macedonians constructed the fleet by which they navigated the Indus; and it is a remarkable fact, that in none of the Punjaub rivers are such trees floated down, nor do there exist anywhere else such facilities for the construction of vessels." Bishop Heber, in a letter to Lord Grenville, alludes to a pine, evidently the C. Deodara, as "a splendid tree, with gigantic arms and narrow dark leaves, which is accounted sacred, and chiefly seen in the neighborhood of ancient Hindoo temples." The Deodar and the Araucaria imbricata are fine illustrations of two opposite styles of beauty in landscape: the Deodar being of a growth and hue, light, airy, and graceful, and the Araucaria being dark, rich and massive. The Deodar Cedar is particularly valuable for planting singly on lawns, and as an avenue tree. For the latter purpose, it probably surpasses any other that has yet been introduced. The wood of the Deodar, Mr. Loudon remarks in his *Arboretum Britannicum*, "has a remarkably fine close grain, capable of receiving a very high polish; so much so, indeed, that a table formed of the section of a trunk nearly four feet in diameter, sent by Dr. Wallich to the late Mr. Lambert, has been compared to a slab of brown agate." It is also stated that the wood of the Deodar has been found perfectly sound in places where it has been known to have stood upwards of 200 years. The Deodar, like the Cedar of Lebanon, will grow in almost any soil and situation. That it is, indeed, admirably adapted for planting in all parts of this country, is amply proved by the noble specimens which are to be seen growing so luxuriantly in the Royal Botanic garden at Kew, and in the Garden of the Horticultural Society of London at Chiswick, as well as at the country seats of many distinguished amateurs of gardening, and more particularly at Elvaston Castle, Dropmore, Panshanger, and Heckfield Place. It is, therefore, to be hoped that our large landed proprietors may be induced to recognise the beauty and value of this, perhaps, best of trees; and that the day is not far distant when our hill sides will be covered with it and other exotic conifers, the great beauty of which will produce a most pleasing and an important change in the landscape scenery of Great Britain. *Knight's Synopsis.*

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Prolongation of Bloom.—Very lately we have seen an instance of Dahlias being preserved from early frosts, which we consider worth notice. They were chiefly of the fancy varieties, and were growing in a bed upon the lawn of a flower garden. They had been pegged down whilst young, and kept so by repeated peggings, so that the highest plant did not exceed one and a half feet. The owner was desirous to prolong the bloom, and to do so, stuck in, all over the bed, some stout sticks, allowing them to stand up above the Dahlias from six to nine inches. Every evening when there was the least appearance of frost, the bed was covered over with garden mats, sewed together in two's and three's, removing them in the morning. By this slight protection they are yet in the greatest perfection, whilst all round the bed, such as were growing singly in the border and others in large masses, were all more or less injured and blackened with the frost. Such of our readers whose Dahlias may have as yet escaped from frost, would be wise, if possible, to try the above method; and the principle might be extended to Geraniums, Heliotropes, &c., with the best effects. The first of October is a good season to mark in a book, kept for that purpose, the kinds of Dahlias, their colours, heights, and other properties. *Cottage Gardener.*

FRONTISPIECE. PRIZE GERANIUM.—Few persons, who have not seen the great horticultural exhibitions of London, can form any just idea of the perfection to which the culture of plants in pots has been brought in modern times. A Geranium or Heath, as commonly seen in a pot, bears the same relation to the same plant, carefully grown for exhibition by the first rate plant grower, that the leanest and most starved *brindle* does to a slick and finely formed Short-Horn. The plant is in the first place perfect in its shape, and symmetrical in all its proportions; the foliage dense, and of a healthful colour and appearance, and the flowers are borne in such profusion, and are so finely formed, and clear and beautiful in colour, that you stand astonished at the wonderful achievement in the art of culture that stands before you.

To give some faint idea of the appearance of one of these showy specimens, we refer our readers to our Frontispiece, representing a Geranium or Pelargonium, grown by Mr. John Parker, gardener to Mr. Oughton, Elm Grove, and exhibited at the show of the Royal Botanic Society. The specimen was afterwards presented to the Queen.

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THE HEART OF NEW-YORK.—The Erie Railroad has opened, and is opening, (for it has not yet reached Lake Erie,) a new State of New-York—a most picturesque and interesting country, which, from its former comparative inaccessibility, was an unknown land to the majority of travellers, and, we may add, even to the largest part of the citizens of New-York.

We passed over a portion of this road lately, as far as Cayuga lake, in the ripest beauty of autumn, and were greatly delighted with the interest of the scenery. The whole line of this road has the novelty of a new country about it. The region watered by the Delaware is wildly picturesque—with its wooded hills, its half-subdued forest thickets, and its dashing, impetuous streams. The Susquehanna country is now smiling and inviting in character, and is full of suggestions of the finest pastoral life in its valleys of sweet waters and glades and meadows of rich pasture land. But the shores of the Cayuga lake have a repose and cultured beauty about them which both particularly pleased and surprised us. The memory of the little town of Aurora most especially remains with us. It is not, like some of the great *classical* cities of Western New-York, a misnomer in its very name, but there is such a *morning freshness* and youth about it that the goddess whose name it bears has no reason to be ashamed of the christening. The shores of Cayuga lake about this place, rise gently from the water, and are finely fringed and dotted with forest trees; among maples and elms which line (New England-like) the principal street of the village, are scattered the simple but neat houses, and as a centre to the grouping, rise a fine academy and village church, half hidden—like a French chateau—in a *bosquet* of tall dark-green poplars. Pretty gardens filled with fine shrubs and flowers, (we noticed perpetual roses and Paulownias in the grounds of Dr. THOMPSON,) and neat little villas with lawns running down to the lake, make up a picture of rural beauty such as one rarely sees; and if Aurora does not deserve mention among the half dozen prettiest villages in America, then are our eyes worth nothing as a medium for this kind of impressions. Cayuga lake is about four miles wide here, and stretches away up and down, some 40 or 50 miles in all. The waters are of crystalline purity, and so deep that the lake here never freezes in winter. The consequence of this is a mildness of climate much greater than any part of New England—Tea roses standing the winter with very little protection, and peaches bearing the finest crops of fruit, without disease in the trees, and with little or no care beyond the trouble of planting them. The Doyenne (or Virgalieu) pear thrives wonderfully in the soil here—the fruit more fair and beautiful than we remember to have seen it elsewhere.* When we add to this that the society is unusually good—the schools excellent—land worth only $30 or $40 per acre, and the neighborhood perfectly healthy, it will be seen that this is a region worth the attention of people who wish to "settle." The Erie railroad (with a branch of a few miles) leaves you at Ithaca—the head of the lake, and railroad and

* Three trees were shown us, the fruit of which had just been sold in N. Y. market for $64.

steamboat together Aurora is an easy day's journey from New-York. We could not but think, as we looked on those beautiful shores of Cayuga lake—a combination of fine wheat-growing lands, and lovely sylvan scenery—that thousands of persons on the other side of the Atlantic, wasting moderate fortunes in paying *rents* for no better soil, might, for the one year's rent they pay there, be proud proprietors of the soil here.

There are, indeed, three parts of the State of New-York not half enough known or admired. The Genesee valley, (especially the WADSWORTH estate) for its grand park-like character: the country south of Owego for its picturesque interest; and parts of Cayuga and the other small lakes of New-York, for the serene and quiet beauty of their landscapes. How many emigrate to the great West, quite overlooking these treasures of country-homes still cheaply obtainable nearer home.

Returning, on the same railway, we could not but admire the rich picture of abundance presented by the cornfields lying on the slopes of the hills and basking in the sun. Certainly no grain is so handsome as the Indian corn—its large and golden ears bursting from the husk, and looking like gifts from the gods. And *pumpkins*—we felt angry as we saw the cornfields thickly embroidered with them, and seeming, as we glided rapidly by, like gigantic oranges strewed over the ground—we felt angry that the commonness of pumpkins, or the fact that they grow in a prosaic age, had so deprived them of all the charm of story and association. Why the vineyards of France or the olive groves of Southern Europe are, as every traveller knows, (poetry aside) utterly unworthy of being mentioned beside an American field of Indian corn and pumpkins!

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THE POMOLOGICAL CONGRESS.—The annual meeting of the Pomologists and fruit-growers took place as announced, at Cincinnati, during the first week of the past month. We learn from various members who attended this session (the numerous home engagements accumulated during our absence abroad having, much to our regret, prevented us joining our friends there) that the session was in the highest degree interesting. That eminent pomological amateur, Dr. BRINCKLE, of Philadelphia, was elected president of the Congress, and numerous horticulturists, fruit-growers, and nurserymen from all parts of the Union were in attendance, laden with interesting specimens.* The show of apples was particularly fine, and the peaches of the neighborhood of Cincinnati astonished all members from a distance by their size beauty and excellence. The discussions which took place after the organization of the Congress were spirited, and embraced a resumé of the culture of the past year; the whole was duly reported, and will, we understand, be published as usual in a pamphlet form.

A large and very rich exhibition of the Cincinnati Horticultural Society, the Fair of the Ohio State Agricultural Society, one of the most extensive displays of farm products ever made in the country, took place at the same time, and, together with a brilliant ball, made the queen city of the west, crowded as she was with strangers, the centre of attraction for almost the whole of the first week of October. Most of the horticultural guests visited the noted garden of Mr. LONGWORTH, and inspected with great interest the large vineyards covering the hills above Cincinnati—the first successful solution of the problem—will America ever be a vine country?

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NOTES UPON FRUITS.—Among the few fine fruits that have come under our notice this season, we have great pleasure in making second favorable mention of the new pear introduced to notice by Mr. HASTINGS, of Clinton, N. Y., called by him the *Fredrika Bremer*, and described in this journal, vol. 4, page 417. Specimens sent us this year were even finer than those we tasted last year—remarkably melting and juicy, and most delicately perfumed. Another new seedling sent us by Mr. H., considerably resembling the White Doyenne, appears likely to prove an acquisition.

Reine Claude de Bavay and Ickworth Imperatrice plums have both proved very fine this season.

We cannot but think the Easter Bergamot pear has been generally under-rated, and allowed almost to disappear from the nurseries. It is, to be sure, of little or no value as a table pear—but as a cooking pear, especially for stewing, it is excellent. No doubt it has superiors in quality, even among cooking pears, but certainly no variety exceeds it in the uniform fairness and handsome appearance of the fruit, and no pear that we know is so regular and heavy a bearer. Then the tree is very healthy. We find, after eight or ten years trial, that no pear is so *depended on* for winter use by the cook, as the Easter Bergamot—hence we think it but right to give it a passing word of commendation to those who wish a stewing pear for family use or for market.

Rockport Bigarreau and Cleveland Bigarreau, two of the new cherries raised by Dr. KIRTLAND, of Northern Ohio, have proved a decided acquisition—being large, handsome and excellent.

Bonne des Zees, is a new foreign pear which has fruited this year, and promises to take its place in the first rank.

* Excepting from New England—which much to the surprise and regret of the West—was not represented. Did our friends the ardent votaries of *pears* at the East fear to enter a field where the *apples* have it all their own way?

Mass. Hort. Society.—The annual exhibition of this society was considered one of the finest as regards the variety and excellence of the fruit shown, ever seen in the United States. The hall of the society was not only filled, but the rooms on the lower floor of the building, not usually occupied, were also put in requisition, and crowded with fine collections of fruits. Among the remarkably fine specimens were Onondaga and Beurre d'Anjou pears grown by Messrs. Hovey, of Boston; Van Mons Leon le Clerc, by Col. Wilder; Doyenne Boussock, by Mr. Davis, and Louise Bonne of Jersey, by Mr. Bemis. Mr. French exhibited a very fine collection of apples—one hundred and forty varieties. The collection of plants in pots and cut flowers was much smaller than at any previous exhibition of the society.

As a guide to fruit-growers we annex the following memorandum of the varieties of pears to which the premiums were awarded:

1st Premium—Col. Wilder's collection; twelve specimens of each variety—Van Mons Leon le Clerc, Dunmore, Beurre d'Anjou, B. d'Amalis, Golden Beurre of Bilboa, Beurre Diel, Duchess of Angouleme, Columbia, Urbaniste, Glout Morceau, Le Cure, and Catillac.

2d Premium—Hovey & Co.'s collection, do; Knight's Monarch, Bule, Beurre d'Anjou, Onondaga, Le Cure, Louise Bonne de Jersey, Beurre d'Amalis, White Doyenne, Beurre Diel, Williams' Bon Chretien, Dunmore, Beurre Seutin.

3d Premium—Mr. Gordon's collection, do.; Brown Beurre, Beurre Bosc, Queen of the Low Countries, Van Mons Leon le Clerc, Winter Nelis, Duchess d'Angouleme, Louise Bonne of Jersey, Marie Louise, Buffum, Glout Morceau, Beurre Deil, Beurre d'Amalis.

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St. Louis Hort. Society.—Our horticultural friends in Missouri not only know how to get up good exhibitions, but how to enjoy these annual festivals. About one hundred and fifty members of the society (as we learn from the Missouri Republican) sat down to the Society's dinner at Concert Hall, at the annual meeting. The president, Thomas Allen, Esq., presided, and the beauty and excellence of the entertainment were fully enjoyed by the large company of members and guests assembled. St. Louis is the rival of Cincinnati in the production of native wines, and we notice that Catawba wines of several vintages, pronounced excellent by good judges, were introduced and drunk at the feast. Several new seedling grapes were also exhibited, some of which promise to be superior to the Catawba.

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Worcester (Mass.) Hort. Society.—Certainly this society, in its annual exhibitions, is not in the least behind any sister institution in the country. Perhaps the *general* collection of fine fruits is better here than anywhere else, evincing not only the character of the soil and climate, but the horticultural zeal and skill of the members.

At the late annual exhibition the prizes for pears were carried off by J. M. Earle, who exhibited forty-nine varieties of pears; D. W. Lincoln, sixty-three varieties, and S. H Colton, twenty-seven varieties. Mr. Colton also took the first prize for apples, showing fifty-two fine varieties. Mr. J. C. Stone's beautiful display of *Mother* apples received a special premium. The pears that attracted most attention were those of the *Paradise d'Automne*, exhibited by various members. Its size, beauty, productiveness, and very high flavor have made it very popular in that part of Massachusetts.

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New-Bedford Hort. Society.—The annual show here was an excellent one, if we may judge from the published reports. Pears were very fine and abundant—nearly one hundred different varieties were exhibited, many of them so large and excellent as to afford proofs of the highest cultivation. The Beurre Rans seems to stand high among winter pears here,—very large and fine samples being exhibited by several persons.

The largest display of varieties was made by the President of the Society—James Arnold, Esq. Messrs. Wm. T. Cook, R. N. Swift, Charles W. Morgan, Wm. Swift and Henry H. Crapo, were the next largest exhibitors. The samples of Beurre Diel, shown by Mr. John A. Parker, Beurre Bosc by John How, Duchess of Angouleme by J. M. Howland, Colmar d'Aremberg by Wm. P. Denny, and Wilbur by Edmund Gardner, were of unusual size and beauty. Specimens of that little known but valuable fruit, the Johonnot Pear, were shown by Mr. F. P. Chase. The display of peaches, apples and grapes was also very creditable to the society. The hall was tastefully decorated, and the collection of flowers, though not large, was choice and interesting.

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Southern Iowa Hort. Society.—We are glad to see that, in the extreme west, horticulture is awakening great attention. This society held its second annual exhibition in Burlington, the last week of September, when 147 different kinds of apples, and good collections of peaches, pears and other fruits were shown. Those who contributed most largely were Messrs. Robert Avery, Calvin Gamage, J. W. Fell, Joseph Stevens and Abner Leonard. In the floral department, Messrs. Rand and Gray bore off the first prizes.

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Daphne Odora—a Hardy Shrub.—There is now growing in the garden of Robert Benner, Esq., near Hurl Gate, a vigorous *Daphne odora*, which was purchased late last autumn, of Mr. Boll, in full bloom. After the bloom went over

some time in December, it was turned out of the pot into a *north* border unprotected, and is now (Oct. 18) in a thrifty condition—not having a yellow leaf. This is an interesting experiment with a favorite shrub, generally believed to be quite tender,—it has, however, been known to stand out all winter in Scotland.

I am experimenting on two, one of which is the silver-edged, having turned them out a month since. It is a native of India, but it is probable the confirmed practice of housing it very tenderly has tended to encourage its bloom in winter. Should further experience prove its hardiness, what an addition it will become to our garden shrubbery. I will make a further report to you respecting it next spring. *D. D. Astoria, Oct.* 18, 1850. ....

Souvenir de Leige Heliotropium.—This new variety of a pleasing tribe, and on which so many fond hopes were built in the expectancy of having a *yellow* "*Heliotrope*," and withal fragrant, has resulted, to a certain extent, in disappointment. In justice, however to the Messrs. Parsons, who sent it out here, it must be admitted that they (shortly after advertising it as yellow) were misinformed, and that it was not as expected, but different from the *intermedia*, &c. &c. I have given it a fair experiment this summer, by turning a young plant into the open ground in June, and am now so well satisfied of its distinctness as a variety as to unhesitatingly pronounce it an acquisition. A large plant of it now in bloom in the conservatory is a most beautiful object; the trusses are more ball-shaped than the old sort—more erect on the stem, and the whole plant of a much more robust habit than either peruvianum or intermedia. It more resembles *H. grandiflorum*, and is every way superior to that showy variety, being as large-flowered, and excelling it by being delightfully fragrant. To bloom *Souv. de L.* well, it must have its season lengthened by lifting the ball from the earth the end of September—potting in rich, light loam, and immediately placing it in the greenhouse. It will then soon develope itself, and fail not to be admired, and I have no doubt will continue to bloom nearly all winter. It is a variety I shall carefully cherish and recommend to all who admire (and who does not) this lovely tribe, which should stand on the same shelf with the beautiful *H. voltarianum*—the contrast of *dark* bluish lilac being admirable, I doubt not, when transferred to the fine climate of Carolina and Georgia, it will bloom magnificently and continue longer in flower than in any other sort. A variety sent me from London, called *Triomph de Leige*, and rated distinct in the English catalogue, is synonymous with "Souvenir." *T. Astoria, L. I., Oct.* 15, 1850. ....

Notes and Queries by a Lady.—The Horticulturist has for some time past afforded me much pleasure and instruction, and the time of its arrival is looked forward to with increasing interest, and its contents eagerly *devoured*. Will the Editor allow we to say that I was so much pleased with "Wild Flowers," letter, a few numbers back, that I hope she may favour us again. I regret that the ladies do not write more for the "Horticulturist," as I am sure their failures and success in gardening would prove highly interesting.

I sincerely hope whitewashing will prove a satisfactory remedy for the *curculio*, for I am getting quite discouraged about my plum trees. I intend to try it next year. My Roses were very much disfigured with a green worm this spring, that formed a web and rolled itself up in the leaves, but I sprinkled the foliage with air-slaked lime, and have not seen one since, except dead ones.

I too have tried *mulching* with great success, and do not think too much can be said in its praise. I would write several pages on its good effects if it were necessary.

I hope your Pittsfield correspondent will not feel discouraged by losing his verbenas last spring; (if I remember rightly he tried keeping them in a hot-bed frame). I lost a very fine one last spring, but it was through neglect, as one I had in another frame which was treated properly lived without other protection, and has done well. I have been quite disappointed in flower seeds purchased lately, which will not come up. I have been told they were *scalded* beforehand; can it be so? [No seedsman, honest or knavish, would be so foolish as to scald his seeds before selling them. Ed.] I do not like to say of whom they were bought, but I shall avoid him in future, with a hope that his *conscience* may trouble him, if he has any.

I have always been in the habit of planting my Hyacinths, that bloomed in water, out in the open ground after they had done blooming, and that was the *end* of them; but this spring I planted them in pots as soon as the bloom had faded—kept them in the house until I put out the rest of my pot-flowers; the consequence was they grew finely, and the roots appear to be as fine as those that bloomed in the ground. I have no doubt they will bloom well this winter, at all events I intend to try them, and see what they will do.

Will the Crape Myrtle and Laburnum require protection in Maryland. while small? [The first probably will—but not the last. Ed.]

I will end these "rough notes" by a quotation from Goethe, which I commend to those among your femenine readers who wish for *reasons* when their friends of the "opposite sex" undertake to make battle against the love for a culture of flowers:

"Every gift is valuable and ought to be unfolded. When one encourages the beautiful alone, and another encourages the useful alone, it takes both of them to form a man. The useful encourages itself, for the multitude produce it, and no one can dispense with it; the beautiful must be encouraged; for few can set it forth, and many need it." *A Constant Reader. Maryland*, 1850.

Location and Aspect of Orchards.—Perhaps nothing would be more serviceable to the inexperienced cultivator than the power of knowing in advance the capabilities of any grounds he might design to appropriate to orchard culture. Inclining strongly to this opinion, the committee have gone somewhat into detail upon facts tending to shed light upon this subject. They are clearly of opinion that, if heretofore there was any doubt upon the subject, the facts now before them warrant the assertion that, other things being equal, the highest grounds are best fitted for success in orchard culture. Those of great elevation being subjected to such increased cold as keeps vegetation back in spring till the danger from frost passes by; whilst smaller undulations upon the surface and the higher strata of the hill-sides are supposed to part with less of their surface heat by radiation than the more moist low lands. The committee are in possession of a well authenticated instance of the effect of absolute height, furnished by a gentleman of high standing and of the most competent ability to form an opinion on such a subject. This gentleman has owned and had cultivated for many years a farm lying within the peach district; his own orchards occupying parts of the slopes of hills of no great height, inclining gently toward a river distant only a few hundred yards. His success has been marked with the uncertainty common to a fickle western climate—that is, a fruit year and a failure, or perhaps two years of productiveness and three of disappointment in every five. Within five miles of his farm, however, is located a hill six hundred feet high, and which is thereby made visible at his farm. Upon this hill the peach crop has not failed since he first knew it.

In far the greater number of cases, the cultivator has to choose between places varying in height only a few feet; under which circumstances, it appears that elevation secures a greater amount of heat, by keeping the surface within the range of moving strata of air and from other causes, than is experienced in the bottoms or depressions.

That they may be the better understood the the committee quote freely from a topographical survey of his orchard grounds executed by one of their correspondents. This gentleman's site occupies the midst of a plain 250 feet above the level of the Ohio valley; its figure is a parallelogram, the long sides running northeast or southwest 100 rods; the short at right angles thereto, in length 75 poles. A valley heads at the eastern short boundary about the middle and runs through the midst of the orchard, crossing the lower or western boundary at a depression of 52 feet below the summit.

The sides of this valley include a large portion of his bearing trees. The map of this survey is marked by horizontal lines at every ten feet depression, counting downward from the summit, so that one sees at a glance how much each tree on the slopes of the valley falls below the summit of the plain. The author of this survey remarks that trees situated near the horizontal line of 30 feet, counting from the summit downward, lost many of their fruit buds on the lower branches during the winter of 1849–50, while other trees of the same varieties at higher elevations preserved their fruit buds unhurt. Again, that, after blooming in the spring, the same trees were more or less affected by frost, as they were below or above said horizontal line of 30 feet—whilst moreover as depression deepened toward the lowest point in the valley the injury from cold increased until not only the fruit buds were killed in 1849–50, but also the small branches or spurs themselves on which the buds were growing. Again, the surplus waters falling upon the plain had in time furrowed out a channel which crossed the southern side of the parallelogram running down one slope of the valley into the stream gliding through the centre. Trees located in or near this channel, even when above the horizontal level aforesaid of 30 feet, were not secure from injury like others on the same horizontal parallel only a few rods distant. To give an example of general results, he states that the Heath tree on high ground bears this year abundantly; below the line of 30 there is not a fruit, and between the horizontal lines 45 and 50 he has some dozen thrifty trees that have not borne in eight years, although in that time there have been three full crops and two partial ones.

The committee have received no account, written or verbal, differing materially from this, except in accuracy of detail. One gentleman states that his peach orchard inclines gently from either of two opposite sides inwardly, but that the depression at the lowest point does not, he thinks, exceed five feet; yet near this lowest point the fruit buds were killed last winter, and even some trees destroyed by cold. Another correspondent, residing upon the flats of Beargrass, a plain which is unbroken for miles in extent and which would be one great morass but that its lands are so fertile and friable as to filtrate the waters which descend upon its surface, assures the committee that only high lands are suited to orchard culture, and, as proof of his theory, points to barren trees along the margin of his streams, moving sluggishly along, almost without banks and without current, whilst his other trees, a little way off, not ten feet higher, bear well. Still other correspondents, whose orchards lie upon hill sides, assert that they can tell in spring where the line of safety ends, and that of injury begins, and that they can perceive the gradations of injury grow greater as the hill sides are descended.

The cause of this injury will doubtless be found to consist either in the greater intensity of cold prevailing in bottoms or the greater susceptibility to harm on the part of trees located amid the

greater moisture always present there. This is an interesting question, and its solution will require many experiments similar in character to those published during the present year by that fast friend of science, Lieutenant Maury, of the navy. The committee have thought the following experiment, though not conducted with a view to that end, calculated to shed light on this subject. On the 14th and 15th of April, 1850, at night, the mercury, in open air, sunk to 26° above zero, and every unprotected open fruit blossom was killed; but at the same time a fruit tree in full bloom, surrounded by artificial heat, with a self-registering night thermometer in its branches which never sunk lower than 29°, saved all its fruit alive; thus showing the difference between safety and destruction not to exceed 3°. Again, the same observer, the author of the topographical survey, on the 2d of April, 1849, had one thermometer on the high portion of his orchard grounds and another in the bottom thirty-five feet lower. At 1 A. M., he found the thermometer in the bottom at 28°, and, being surprised to see that on the hills 33°, changed their position, but was soon convinced that there was a difference in temperature between the two points of five degrees, which, on the 14th and 15th of April last, would have been more than a killing difference. An acknowledged ignorance, both of the intrinsic value and time of ripening in respect to many peaches, pears, and plums now in cultivation, forbids any attempt on the part of the committee to offer a list for general cultivation, or to propose a rejected list; and they would further remark that, although the statements herein set forth are more particularly applicable to stone fruits, it is only because their comparatively tender habits render them more frequently a prey to ever existing causes than the hardier apple and pear. The latter fruits are by no means harm proof.

In regard to preventives against the assault of the curculio upon smooth fruits the, committee feel called on to state a few facts and experiments. Several cultivators have this year tried dusted lime, upon Mr. Young's plan; others trying with whitewash. Whitewashing fails to cover the young fruits, and seems to be inefficient, and, for this season, dusted lime has not given the same satisfaction as for the two previous years. At present the committee are inclined to think failure (which was only in part,) attributable to erroneous impressions as to the stay of the curculio rather than to any want of virtue in powdered lime. Several experimenters testify to the soundness and beauty of their fruits so long as the limings were kept up; but that the curculio, instead of disappearing at the end of a month, as usual, prolonged its stay and afterward wholly destroyed some crops and greatly injured most others treated with lime. All of which is respectfully submitted. *L. Young, Chairman State Fruit Committee for Kentucky.*

Mass. Annual Horticultural Exhibition.—The exhibition opened on Tuesday at the rooms of the Mass. Horticultural Society, in School-street, and we can promise our readers that the display was unusually rich,—the specimens of fruit and vegetables surpassing in beauty of appearance, and number of varieties, those exhibited in any preceding year. The decorations of the Hall—floral and evergreen—are in good taste, and the arrangements for the best display of Nature's richest productions, are highly appropriate and successful. The hall above, usually devoted to exhibitions, is exclusively appropriated to flowers and pears. But the pears constitute by far the most interesting object of the exhibition, embracing glorious specimens of all kinds which are known to cultivators in New England, and many new varieties recently introduced from abroad.

It is, of course, impossible for us to give even a sketch of the varieties and character of the various pears exhibited, or even a list of the contributors, whose name is Legion, and among the most prominent of whom we find the names of Wilder, Walker, Winship, Breck & Co., Hovey, Gordon, Manning, Williams, Cabot, and Lovett. The number of varieties of pears exhibited by Col. Wilder, was upwards of two hundred, and some of the specimens were remarkably fine—especially a dish of the somewhat celebrated pear, Van Mons Leon le Clerc, whose size and beauty must command universal admiration. Col. Wilder exhibits several new varieties, whose merit has not yet been tested—and among them we saw the Westcott, a native pear, from Rhode Island, we believe, of high reputation, but hitherto unknown here.

Among the finest specimens of pears exhibited, were some of the Swan's Orange, by Hovey & Co., a large and find looking pear; some of the Seckel, and Beurre Bosc, from Mr. Driver, of Salem; Beurre Bosc and Vicar of Winkfield, from Mr. Gordon of Brighton; Louise Bonne de Jersey, very large, from Mr. Baldwin of Brighton; Andrews, (magnificent) from Mr. Crafts of Roxbury; the Nouvelle Boussock, from Mr. Washburn of Plymouth; Flemish Beauty, from J. W. Rogers of Jamaica Plains; Columbia, from A. D. Williams & Son, Roxbury; Beurre Diel, (very large) from Mr. Bacon of Roxbury; Flemish Beauty and Beurre D'Amalis, and Urbaniste, from Mr. Lovett of Beverly; Flemish Beauty from J. W. Rogers, Jamaica Plains, Beurre D'Amalis, Gil-O-Gil, and Louise Bonne de Jersey, from Mr. Johnson of Lynn; Seckel from Mrs. Dudley of Roxbury; Chaumontel, a fine old French variety, from Breck & Co., Brighton; Figue, Winter Nelis, and Columbian, from Mr. Cabot of Salem. Mr. Cabot exhibited eighty-five varieties. A dish of Bartlett pears, well and carefully ripened, of a beautiful clear golden color, from Mr. Raymond of Cambridge, are worthy of particular attention,—also, some good specimens of Bartlett grown, on an apple tree, from Wm. J. Niles of West Cambridge.

There is also a large basket containing ninety-five fine Bartlett pears, the product of one small tree, three years from the graft, from Mr. Macintire of Somerville. Mr. B. V. French of Braintree, exhibited over one hundred varieties of pears, some of them very fine specimens, and about the same number of varieties are exhibited by Mr. Manning of Salem.

The lower floor. including the large room rented by Mr. Bowditch, for the New England Seed Store, is crowded with apples, peaches, plums, and vegetables, the great variety of which, as well as their magnitude and beauty, must attract great attention from all persons of taste. We never saw a finer exhibition of apples; Mr. B. V. French exhibits about *one hundred and forty* fine varieties, including probably all the best kinds cultivated. Over these the Gloria Mundi, as large as good sized pumpkins, seems to reign supreme. A. D. Williams & Son, of Roxbury, exhibit some thirty or forty varieties, among which we particularly noticed as most conspicuous, the Queen of the Orchard. Some Baldwins, from L. G. Lake, of Topsfield, are uncommonly fine; also the apples from J. B. Moore of Concord, and James Eustis of South Reading. Mr. Eustis exhibited thirty varieties.

The peaches and other fine fruits, occupy a large table in the library room, and form a pleasing object of study for the painter and epicure. They look most tempting. Some varieties, as for instance the early Crawford, are very fine. So also are the specimens of nectarines and plums.

The vegetables are conveniently arranged on the lower floor, and should not be forgotten, constituting as they do, by no means the least important part of the exhibition. Among the contributions we notice a variety of squashes, tomatoes, cabbages which can hardly be contained in a washtub, corn, beans, &c., from A. D. Williams of Roxbury; a fine lot of vegetables of the same kind from A. Parker of Roxbury; potatoes, cauliflowers, squashes, &c., well worth looking at, from Lyman Kingsley of Canton; a noble Yankee pumpkin, from Nahum Stetson of Bridgwater; an enormous Jersey squash, from A. A. Andrews of Roxbury; large Marrow squashes, from J. A. Lowell of Roxbury; Old Colony Sweet corn, a new and prolific variety, from A. R. Pope of Somerville; and some magnificent vegetables of various kinds, from J. B. Moore of Concord, such as beets 30 inches in length, and parships nearly as large, turnips of several kinds, and fine-looking melons. There are also some fine Marrow squashes, from John Schouler of Cambridge, and Crook-necked squashes, Egg Apple, and other vegetables, from J. Gordon of Brighton.

A full description, however, even if we had time to write it, would convey but an imperfect idea of the beauty and excellence, and variety of the good things now on exhibition at the Society's Rooms in School-street. Even if it would, a full description would be unnecessary, as all persons of taste who take the slightest interest in such productions—and who does not?—will go and examine for themselves. *Boston Journal.*

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Worcester Horticultural Society's Annual Exhibition.—The Committee are of the opinion that a finer display of fruit than that which they were called upon to examine, has never been exhibited within the limits of New England, outside of the city of Boston. The lovers of fruits and flowers may well congratulate themselves upon the measure of prosperity to which the society has attained; gratifying as it is for the present; encouraging as we hope it may be for the future. One thing cannot fail to be noticed, that the pomological resources of the society have wonderfully increased within a comparatively short period of time.

Ten years ago, there were placed upon a few small tables in an obscure room, three or four dozen dishes of apples—chiefly of the most common varieties,—a few plates of pears—kindly given or reluctantly lent for the occasion by cultivators residing within the territory proper of the Mass. Hort. Society—a score or two of quinces, and *one solitary sample of the peach.* To make out the attractions of the display, the room itself was decorated with paintings. These and other preparations having been made, the people (counted as easily by scores as by hundreds) assembled to witness the first regular exhibition held by the society.

A few years have passed away, and the society have just held their eleventh annual exhibition. Their large and commodious hall was filled with tables, leaving only passage ways between them. Upon these were arranged twelve hundred plates of beautiful fruit, all carefully labelled! Besides the members of the society, more than two thousand visitors crowded into the hall to examine and compare the fruits, and to become bewildered by the profusion that surrounded them.

The display of pears alone comprised nearly four hundred plates, containing specimens of not less than seventy varieties.

Of apples, there was a still greater quantity, although the number of known varieties might have been less.

More than thirty varieties of the peach were exhibited, among which were several fine and beautiful seedlings. Although late, and in an unpropitious season, the best collection numbered not less than thirteen valuable varieties of plum—a cheering evidence that, in despite of black excrescence, the rot, and the curculio, it is not yet time to despair of this favorite fruit.

Of grapes grown under glass, a single cultivator, D. W. Lincoln Esq. of this city, exhibited nine varieties.

Several specimens of the grape grown in open culture where upon the tables, but they were mostly unripe. There were also fine quinces

and other fruits. With the single exception of two plates of peaches from Mr. Delavan of New Jersey, the entire collection of fruit was the product of the county of Worcester! It would hardly be an exaggeration, to assert that the whole State of Massachusetts, exclusive of Boston and half a dozen towns in the immediate vicinity of that city, could not, ten years ago, have produced such a display of the truly valuable productions of the orchard and garden, the great utility of the horticultural exhibitions would seem, therefore, to be no longer a matter of question; for certainly, it is from these more than from any other sources that the committee have acquired a knowledge of the very best varieties of fruit, and a taste of their cultivation. James Allen, of Oakham, contributed a fine specimen of cranberries, grown in his garden, together with a written account of the method of cultivation. Doubtless a fine crop of this fruit might be raised in any garden, by manuring heavily with swamp muck, and adopting the same general mode of culture as for the strawberry.

After a great deal of examination and careful comparison, the committee concluded to award the Society's Premiums, as in the annexed list.

Pears—*Best Collection*, 1. J. M. Earle, $5—2 D. W. Lincoln, $4—3. S. H. Colton, $3——*Best Six*, 1. John C. Mason, Paradise d'Automne, $2—2. G. Paine, L. B. de Jersey, $1.

Apples—*Best Collection*, 1. S. H. Colton, $5—2. Joel Knapp, $4—3. B. N. Child, $3——*Best Six*, 1. J. C. Stone, Mother Apple, $2—2. Chester Gorham, Hubbardston Nonsuch, $1.

Peaches—*Best Collection*, 1. J. H. Allen, $4—2. Capt. Silas Allen, $3—3. C. J. Parker, $2——*Best Twelve*, 1. Asa H. Allen, for his splendid Seedlings, $2—2. W. L. Lewis, Early Crawford, $1——To E. H. Hill, for best new Seedling, $1.

Plums—*Best Collection*, 1. S. H. Colton, $4——To Ansel Luken, best dish, name doubtful, $2—2. J. C. Mason, for Jefferson, $1.

Grapes—The splendid specimens from D. W. Lincoln, being entered for exhibition only, the Committee awarded the 1st. To Charles Hale, Millbury; best Grapes, (grown under glass)—$2—3d. To William Earle; best Grapes of open culture, (for his *Sweetwater*)—$2.

Quinces—1st. Job C. Stone, Shrewsbury; best specimen of not less than six Quinces—$2.

Gratuity—To Solomon Parsons, for a beautiful plate of High Blackberries—$1.

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ANSWERS TO CORRESPONDENTS.

Grape Vines.—*A. L. W.* Bury the leaves of your vines about the roots, they are the best manure for them, and you may use the lime-ashes—the refuse of the kilns after burning the lime, as a manure. You may apply as much as 500 bushels to the acre with great advantage, as no plant is fonder of lime than the grape. *Vitis*, (Burlington, N. J). The three best sorts are Black Hamburgh, Royal Muscadine (Chasselas of Fontainbleau,) and Muscat of Alexandria. They will all ripen in a cold vinery. *An old Subscriber*, (New Haven) If the subsoil is gravel or sand the borders for the vines will need no drainage. Prune your vines and wind straw round the stems for the winter.

Annual Flowers.—*A Subscriber at Mohawk.* German Asters are only China Asters—improved by cultivation—very double varieties, variegated and of different colors, with plain or quilled petals. Great attention is paid on the continent to this flower, and seeds, very carefully saved, are sent from Germany to other countries.

Training Pears.—*Several Maine Subscribers.* We intend giving soon an account of the mode of training pyramidal pear trees as we saw it practiced in France. It will be quite in time for you, as the first pruning takes place in March. *A. R.*, (Delaware). We recommend the following sorts to you: Bartlett, Louise Bonne de Jersey, Beurre d'Anjou, Seckel, Paradise d'Automne, Duchess of Angouleme, Winter Nelis, Beurre d'Aremberg.

Roses.—We would advise you to plant Perpetuals instead of "June roses," as they have all the beauty, size, color and fragrance of the June roses, with the advantage of blooming several times in the season. We recommend the following sorts of Perpetuals: Baron Prevost, La Reine, Mrs. Elliot, Robin Hood, Wm. Jessie, Dr. Marx, Geante des Batailles, Duchess of Sutherland, Augustine Mouchelet, Lady Alice Peel, Aubernon, Madame Laffay. Make the soil for them 2½ feet deep and very rich—and let the basis be strong *loam*, not light sandy soil. Chenedole is a fine Hybrid China. The Poudrette of the Lodi works is a good manure for roses. Buy Buist's Flower Garden Directory, and Mrs. Loudon's Companion to the Flower Garden.

Tree Planting.—*A Beginner*, (St. Louis). In your rich soil, deep plowing is all that you need, and you will succeed best if you press the earth pretty firmly about the roots. Though you should plant the tree a little higher than it stood before, to allow for its settling, you had better raise a hillock five or six inches high around it to keep the tree steady—removing the hillock when the ground is settled in the spring. This hillock will usually be found to steady the tree (if small) sufficiently, without using stakes. *W.*, (Trenton, N. J.) Trench the ground throughout before putting in the dwarf trees, as it is worn out. Work in a heavy dressing of stable manure, and give it a plentiful top dressing of leached ashes. *A Constant Reader*, (Norwalk, Ct.) By all means shorten-in the ends of all the forest trees before planting them. The trees will put out much more vigorous

shoots, and at the end of three years will have a finer head than if left untouched—to say nothing of the greater certainty of their living. You may plant evergreens at any time—autumn, winter, spring, or even summer, *provided* you can move balls of earth with the roots.

Rare Tree Seeds.—*A Nurseryman*, (Baltimore). You will find full directions for raising Magnolias from the seed, in vol. 11, page 191. Most rare tree seeds should be sown as soon as gathered in deep, rich sandy soil, and the beds covered during the winter with about two inches of tan-bark.

Half Hardy Shrubs.—*W. Richards*, (New York). Raise a small hillock of tan or charcoal or sand round the trunk of the shrub, and turn a barrel over it. In order to admit a little light and air, raise the north side of the barrel a couple of inches, and put a stone under it. It is not the cold, but the sunshine after the cold which destroys half hardy plants. Tea roses do better if left in the beds and covered with a rough frame and common hot-bed sash, with a few inches of straw over it, than if taken up now, housed, and replanted in the spring. The Ivy, which fails to grow with you, needs to be *shaded* and sheltered a little the first few winters, till it gets established on the wall with plenty of leaves; it will then grow luxuriantly and take care of itself. You will find evergreen boughs from the woods, if you can get them, better for covering tender plants than straw or litter.

Dwarf Pears.—*G. I.*, (Worcester, Mass.) A *south* wall is the very worst situation in which to train a pear tree; the sun is too hot in summer, and the thawing and freezing too violent in winter. We should say don't plant them there at all—but if you *must*, then put a trellis a few inches from the wall, on which to train the trees. The following are good sorts for the purpose—on quince: Duchess d'Angouleme, Louise Bonne de Jersey, Beurre d'Anjou, Winter Nelis, Paradise d'Automne.

PENNSYLVANIA HORTICULTURAL SOCIETY.

The stated meeting for September was held in the Hall on Tuesday evening, 18th. Wm. H. Dillingham in the chair.

Communications from Herman Wendell, M. D., of Albany, N. Y., and James Arnold, of New-Bedford, Mass., were read in reply to a notification of their election as honorary and corresponding members of the association.

The stated meeting for October was held in the Lecture Room on the 15th. The President in the chair.

The exhibition on the occasion was beautiful; consisting of a goodly collection of fine plants, from Mr. Dundas' greenhouses, and another from John Lambert's houses; and very tasteful designs of cut flowers by Andrew Dryburgh and Peter Raabe; chaste baskets of cut flowers and bouquets by Maurice Finn, Andrew Dryburgh, William Hall and Robert Kilvington. The display of fruit was interesting and from various sources; from Mr. Samuel Walker, President of the Massachusetts Horticultural Society, nineteen varieties of pears, viz., Vicar of Winkfield, Duchess d'Angouleme, Beurre Diel, Louise Bonne de Jersey, Figue of Naples, Figue, Eyewood, Napoleon, Winter Nelis, Beurre d'Anjou, Passe Colmar, Belle et Bonne de Hee, Doyenne Dorée, Beurre d'Aremberg, B. Capiaumont, B. Duval, Urbaniste, Columbia and Catilac; from Matthew Mackie, Clyde, Wayne county, N. Y., pears—the Sheldon, Huron and Wisner, and the Clyde Beauty Apple; from J. C. Hastings, Clinton, Oneida county, N. Y., the Fredrica Bremer Pear; from Cincinnati Horticultural Exhibition, apples—the Rome Beauty, Cooper, Belmont (or Waxen, of Ohio,) Springer's Seedling, Pryor's Red, Carpenter's Seedling from Lake Erie, and Kaighn's Spitzenberg; from W. V. Pettit, Easter Beurre Pears. For a sight of these, the society was indebted to Dr. Brinckle. Isaac B. Baxter presented two varieties of seedling peaches, Duchesse d'Angouleme Pears, and two varieties of grapes. Dr. Blackfan—specimens of the Hector Apple, a seedling of Delaware county. John Perkins—apples—the Fall Pippin and Autumn Pearmain. Mrs. N. A. Roe—the Hayes Apple and quinces. Wm. Johns—three varieties of grapes. The displays of vegetables, by Anthony Felten, Anthony Felten, jr., Maurice Finn, gardener to Jno. Lambert, and Jno. Gallagher, gardener to Miss Gratz, were very commendable.

Premiums were awarded by the committee on plants and flowers. Hot-house plants—for the best three specimens, to James Bisset, gardener to James Dundas. For the most interesting collection of plants, to Maurice Finn, gardener to Jno. Lambert; for the second best collection, to James Bisset. For the best design of cut flowers, to Andrew Dryburgh: for the second best design, to Peter Raabe. For the best hand bouquet, to James Bisset. For the best bouquet of indigenous flowers, to Robert Kilvington. For the best basket of cut flowers, to Andrew Dryburgh; for the second best basket, to Maurice Finn. And a special premium of one dollar to Wm. Hall, for a basket of flowers.

By the committee on fruit. Pears—for the best half peck, to J. C. Hastings, for Fredrica Bremer variety; for the second best, to Isaac B. Baxter, for Duchess d'Angouleme. Apples—for the best half peck, to Jno. Perkins, for Fall Pippin; for the second best, to the same, for Autumn Pearmain. And special premiums—one of two dollars to Samuel Walker, for nineteen varieties of pears, and one of one dollar to Matthew Mackie, for specimens of Sheldon, Huron, and Wisner pears.

By the committee on vegetables. For the best Tomatoes, to Jas. Jones. For the best Peas, to Anthony Felten; for the second best—a different variety—to Anthony Felten. For the best Bush Beans, to Anthony Felten, jr.; for the second best, to Anthony Felten; for the best and most interesting display by a commercial gardener, to Anthony Felten, jr.; for the third best, to the same; for the best display by an amateur gardener, to Maurice Finn, gardener to Jno. Lambert; for the second best display, to John Gallagher, gardener to Miss Gratz.

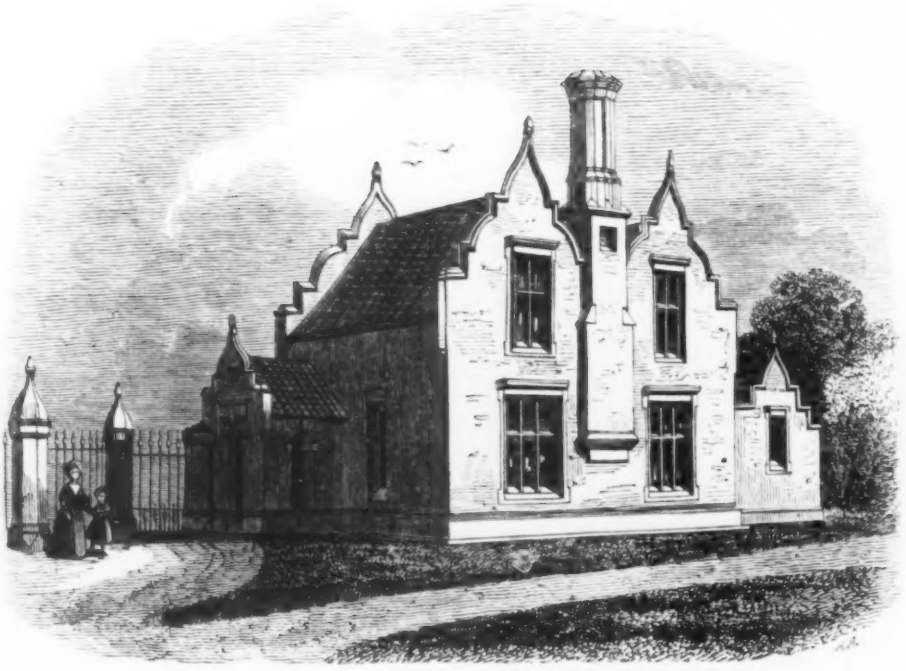
The committee appointed to award the premiums at the 22d autumnal exhibition, held on the 18th, 19th, and 20th ult., submitted their reports, which were read and approved.

Delegates appointed to visit the Cincinnati Horticultural Society, and the West Philadelphia Horticultural Society, submitted reports.

Members Elected.—Chas. Henry Fisher, R. B. Jones, jr., Sarah Hammersly, Jacob B. Ritter, Jacob Fry, Z. Leeke, Walter Patterson, W. S. Cleavenger, Samuel Field and E. Yunger.

Adjourned.

Tho. P. James,
Recording Secretary.



INTERIOR VIEW OF THE MAIN ENTRANCE TO THE DERBY ARBORETUM.